



AV Receiver

RX-V671

Owner's Manual

Be sure to read "Safety Brochure" (supplied booklet) before using this unit.

English for U.S.A.

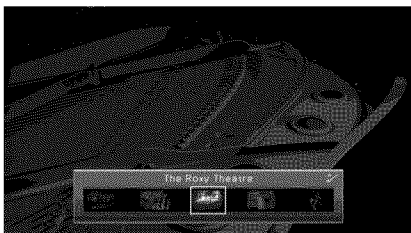
Configuring sound programs/surround decoders (Sound Program menu)

You can change the settings of the sound programs and surround decoders using the TV screen.

- 1 Press ON SCREEN.
- 2 Use the cursor keys to select “Sound Program” and press ENTER.

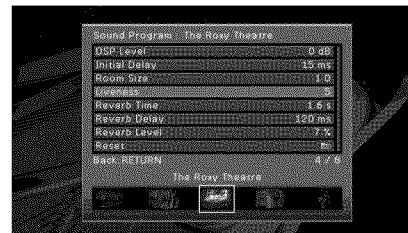


- 3 Use the cursor keys (◀/▶) to select a sound program to be configured and press the cursor key (△).



- You can still switch the sound program by using cursor keys (◀/▶) after step 3.

- 4 Use the cursor keys (△/▽) to select an item and press ENTER.



- To return to the previous screen during menu operations, press RETURN.
- To restore the default settings for the selected sound program, select “Reset”.

- 5 Use the cursor keys to select a setting and press ENTER.
- 6 To exit from the menu, press ON SCREEN.

Sound Program menu items



- Available items vary depending on the selected sound program or surround decoder.

Settings for sound programs

Item	Function	Settings
Decode Type	Selects a surround decoder to be used in combination with the selected sound program.	PLIIx Movie (PLII Movie), Neo:6 Cinema
DSP Level	Adjusts the sound field effect level.	-6dB ~ +3dB (default: 0dB) Higher to enhance the sound field effect and lower to reduce.
Initial Delay	Adjusts the delay between the direct sound and presence sound field generation.	1ms ~ 99ms Higher to enhance the delay effect and lower to reduce.
Surround Initial Delay	Adjusts the delay between the direct sound and surround sound field generation.	1ms ~ 49ms Higher to enhance the delay effect and lower to reduce.
Surround Back Initial Delay	Adjusts the delay between the direct sound and surround back sound field generation.	
Room Size	Adjusts the broadening effect of the presence sound field.	0.1 ~ 2.0
Surround Room Size	Adjusts the broadening effect of the surround sound field.	Higher to enhance the broadening effect and lower to reduce.
Surround Back Room Size	Adjusts the broadening effect of the surround back sound field.	
Liveness	Adjusts the loss of the presence sound field.	0 ~ 10
Surround Liveness	Adjusts the loss of the surround sound field.	Higher to enhance the reflectivity and lower to reduce.
Surround Back Liveness	Adjusts the loss of the surround back sound field.	
Reverb Time	Adjust the decay time of the rear reverberant sound.	1.0s ~ 5.0s Higher to enrich the reverberant sound and lower to have clear sound.

Item	Function	Settings
Reverb Delay	Adjusts the delay between the direct sound and rear reverberant sound generation.	0 ms ~ 250ms Higher to enhance the delay effect and lower to reduce.
Reverb Level	Adjusts the volume of the reverberant sound.	0% ~ 100% Higher to strengthen the reverberant sound and lower to weaken.

The following items are available when you select “2ch Stereo” or “7ch Stereo”.

Sound program	Item	Function	Settings
2ch Stereo	Direct	Selects whether to automatically bypass the DSP and tone control circuits when an analog audio source is played back.	Auto (default), Off Select “Auto” to bypass the circuits (when both “Treble” and “Bass” are set to 0dB).
	Center Level	Adjusts the volume of the center channel.	
	Surround L Level	Adjusts the volume of the surround left channel.	0% ~ 100% (default: 100%)
7ch Stereo	Surround R Level	Adjusts the volume of the surround right channel.	
	Surround Back Level	Adjusts the volume of the surround back channel.	0% ~ 100% (default: 50%)
	Surround Back L Level	Adjusts the volume of the surround back left channel.	0% ~ 100% (default: 35%)
	Surround Back R Level	Adjusts the volume of the surround back right channel.	
	Front Presence L Level	Adjusts the volume of the front presence left channel.	0% ~ 100% (default: 33%)
	Front Presence R Level	Adjusts the volume of the front presence right channel.	



- Available items in “7ch Stereo” vary depending on the speaker system being used.

■ Settings for decoders

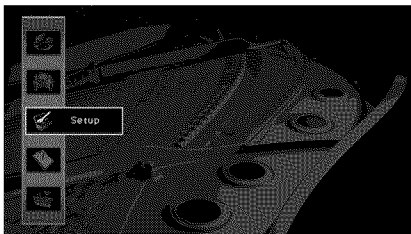
The following items are available when you set “Decode Type” of “Surround Decoder” to “PLIIx Music” or “Neo:6 Music”.

Decode Type	Item	Function	Settings
PLIIx Music	Panorama	Adjusts the broadening effect of the front sound field.	Off (default), On Select “On” to wrap front right/left channel sounds around the field and generate a spacious sound field in combination with the surround sound field.
	Center Width	Adjusts the broadening effect of the center sound field.	0 ~ 7 (default: 3) Higher to enhance the broadening effect and lower to reduce (closer to center).
	Dimension	Adjusts the difference in level between the front and surround sound fields.	-3 ~ +3 (default: 0) Higher to strengthen the front sound field and lower to strengthen the surround sound field.
Neo:6 Music	Center Image	Adjusts the center orientation level (broadening effect) of the front sound field.	0.0 ~ 1.0 (default: 0.3) Higher to strengthen the center orientation level (less broadening effect) and lower to weaken (more broadening effect).

Configuring various functions (Setup menu)

You can configure the various functions of this unit using the TV screen.

- 1 Press ON SCREEN.
- 2 Use the cursor keys to select “Setup” and press ENTER.



- 3 Use the cursor keys (◀/▶) to select a menu.



- 4 Use the cursor keys (△/▽) to select an item and press ENTER.



- To return to the previous screen during menu operations, press RETURN.

- 5 Use the cursor keys to select a setting and press ENTER.
- 6 To exit from the menu, press ON SCREEN.

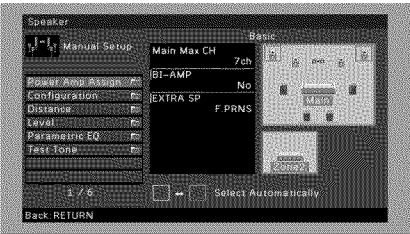
Setup menu items

Menu	Item	Function	Page		
Speaker	Auto Setup	Optimizes the speaker settings automatically (YPAO).	33		
	Manual Setup	Power Amp Assign	Selects a speaker system.	90	
		Configuration	Front	Selects the size of the front speakers.	90
			Center	Selects whether or not a center speaker is connected and its size.	90
			Surround	Selects whether or not surround speakers are connected and its size.	90
			Surround Back	Selects whether or not surround back speakers are connected and its size.	91
			Front Presence	Selects whether or not presence speakers are connected.	91
			Subwoofer	Selects whether or not a subwoofer is connected and its phase.	91
			Extra Bass	Sets the speakers to produce the front channel low-frequency components.	91
		Bass Cross Over	Sets the lower limit of low-frequency component produced from speakers of which the size is set to “Small”.	91	
		Distance	Sets the distance between each speaker and listening position.	91	
		Level	Adjusts the volume of each speaker.	92	
		Parametric EQ	PEQ Select	Selects a type of equalizer to be used.	92
			PEQ Data Copy	Copies the parametric equalizer values acquired with “Auto Setup” to the “Manual” fields for fine adjustment.	92
		Test Tone	Enables/disabled the test tone output.	92	
Sound	Lipsync	Adjusts the delay between video and audio output.	93		
	Dynamic Range	Selects the dynamic range adjustment method for bitstream audio (Dolby Digital and DTS signals) playback.	93		
	Max Volume	Sets the maximum volume so that sound is not too loud.	93		
	Initial Volume	Sets the initial volume for when this receiver is turned on.	93		
	Adaptive DSP Level	Selects whether to automatically adjust the CINEMA DSP effect level in conjunction with volume adjustments.	93		
Video	Analog to Analog Conversion	Enables/disables the video conversion between the analog video jacks.	94		
	Processing	Enables/disables the video signal processing (resolution and aspect ratio).	94		
HDMI	HDMI Control	Enables/disables HDMI Control. You can also configure the relevant settings (ARC, TV audio input, etc).	95		
	Audio Output	Selects a device to output audio (input through HDMI jacks).	95		
	Standby Through	Select whether to output videos/audio (input through HDMI jacks) to the TV when this unit is in standby mode.	96		
Network	IP Address	Configures the network parameters (IP address, etc).	96		
	Network Standby	Selects whether or not to turn on this unit by the command from other network devices.	96		
	MAC Address Filter	Sets the MAC address filter to limit access to this unit from other network devices.	96		

Menu	Item		Function	Page		
Multi Zone	Zone2 Set	Max Volume	Sets the Zone2 maximum volume so that sound is not too loud.	97		
		Initial Volume	Sets the Zone2 initial volume for when this unit is turned on.	97		
	Zone Rename		Changes the zone names displayed on the TV screen.	97		
Function	Auto Power Down		Sets the amount of time for auto-standby.	97		
	Display Set	Front Panel Display	Dimmer	Adjusts the brightness of the front display.	98	
				Scroll	Sets the scrolling manner of the front display.	98
		Short Message		Selects whether to display short messages on the TV screen when this unit is operated.	98	
	Wall Paper		Selects a wall paper displayed on the TV.	98		
	Trigger Mode		Specifies the condition for the TRIGGER OUT jack to function.	98		
	Trigger Output	Target Zone		Specifies the zone with which the TRIGGER OUT jack functions synchronized.	98	
		Target Source		Specifies the output level of the electronic signal transmitted with each input switching.	99	
		Manual		Switches the output level for electronic signal transmission manually.	99	
	Memory Guard		Prevents accidental changes to the settings.	99		
Language			Select an on-screen menu language.	99		

Speaker (Manual Setup)

Configures the speaker settings manually.



Power Amp Assign

Selects a speaker system.

In addition to the 5.1- or 7.1-channel speaker system, various speaker configurations are possible using the presence speakers, Zone2 speakers or bi-amp connection.

Settings

Basic (default)	Select this when you use a normal speaker system (not to use Zone2 speakers or bi-amp connection).
7ch+1ZONE	Select this when you use Zone2 speakers (p.69) in addition to the speaker system in the main zone.
5ch BI-AMP	Select this when you connect front speakers that support bi-amp connections (p.19).

Configuration

Configures the output characteristics of the speakers.



- When you configure the speaker size, select "Large" if the woofer diameter of your speaker is 16 cm or larger or "small" if it is smaller than 16 cm.

Front

Selects the size of the front speakers.

Settings

Large	Select this for large speakers. The front speakers will produce all of the front channel frequency components.
Small (default)	Select this for small speakers. The subwoofer will produce front channel low-frequency components (configurable in "Bass Cross Over").



- "Front" is automatically set to "Large" when "Subwoofer" is set to "None".

Center

Selects whether or not a center speaker is connected and its size.

Settings

Large	Select this for large speaker. The center speaker will produce all of the center channel frequency components.
Small (default)	Select this for small speaker. The subwoofer will produce center channel low-frequency components (configurable in "Bass Cross Over").
None	Select this when no center speaker is connected. The front speakers will produce center channel audio.

Surround

Selects whether or not surround speakers are connected and its size.

Settings

Large	Select this for large speakers. The surround speakers will produce all of the surround channel frequency components.
Small (default)	Select this for small speakers. The subwoofer will produce surround channel low-frequency components (configurable in "Bass Cross Over").
None	Select this when no surround speakers are connected. The front speakers will produce surround channel audio. Virtual CINEMA DSP works when you select a sound program.

□ Surround Back

Selects whether or not surround back speakers are connected and its size.

Settings

Large x1	Select this when 1 large speaker is connected. The surround back speaker will produce all of the surround back channel frequency components.
Large x2	Select this when 2 large speakers are connected. The surround back speakers will produce all of the surround back channel frequency components.
Small x1	Select this when 1 small speaker is connected. The subwoofer will produce surround back channel low-frequency components (configurable in "Bass Cross Over").
Small x2 (default)	Select this when 2 small speakers are connected. The subwoofer will produce surround back channel low-frequency components (configurable in "Bass Cross Over").
None	Select this when no surround back speakers are connected. The surround speakers and subwoofer (or front speakers) will produce surround back channel audio.

□ Front Presence

Selects whether or not presence speakers are connected.

Settings

Use (default)	Select this when presence speakers are connected.
None	Select this when no presence speakers are connected.

□ Subwoofer

Selects whether or not subwoofer is connected and its phase.

Settings

Use	Normal (default)	Select this when a subwoofer is connected (not to reverse the phase). The subwoofer will produce LFE (low-frequency effect) channel audio and low-frequency components from other channels.
	Reverse	Select this when a subwoofer is connected (reverse the phase). The subwoofer will produce LFE (low-frequency effect) channel audio and low-frequency components from other channels.
None		Select this when no subwoofer is connected. The front speakers will produce LFE (low-frequency effect) channel audio and low-frequency components from other channels.



- When the bass sound is lacking or unclear, switch the subwoofer phase.

□ Extra Bass

Sets the speakers to produce the front channel low-frequency components.

Settings

Off (default)	Depending on the size of the front speakers, either the subwoofer or front speakers produce the front channel low-frequency components.
On	Both the front speakers and subwoofer produce the front channel low-frequency components.



- This setting is not available when "Subwoofer" is set to "None" or "Front" is set to "Small".

□ Bass Cross Over

Sets the lower limit of low-frequency component produced from speakers of which the size is set to "Small". A frequency sound lower than the specified value will be produced from the subwoofer or front speakers

Settings

40Hz, 60Hz, 80Hz (default), 90Hz, 100Hz, 110Hz, 120Hz, 160Hz, 200Hz



- If the volume and cross-over frequency are adjustable on your subwoofer, set the volume to half and cross-over frequency to maximum.

■ Distance

Sets the distance between each speaker and listening position so that sounds from the speakers reach the listening position at the same time. First, select the unit of distance from "Meter" or "Feet".

Choices

Front L, Front R, Center, Surround L, Surround R, Surround Back L, Surround Back R, Front Presence L, Front Presence R, Subwoofer

Setting range

0.30m ~ 24.00m (1.0ft ~ 80.0ft) *0.05m (0.2ft) steps

Default

3.00m (10.0ft)

■ Level

Adjusts the volume of each speaker.

Choices

Front L, Front R, Center, Surround L, Surround R, Surround Back L, Surround Back R, Front Presence L, Front Presence R, Subwoofer

Setting range

-10.0dB ~ +10.0dB (0.5dB steps)

Default

0.0dB

■ Parametric EQ

Adjusts sound quality of tone with an equalizer.

□ PEQ Select

Selects a type of equalizer to be used.

Settings

Manual	Select this when you want to adjust the equalizer manually. For details, see "Manual equalizer adjustment".
YPAO:Flat	Adjusts individual speakers to achieve the same characteristics.
YPAO:Front	Adjusts individual speakers to achieve the characteristics same as the front speakers.
YPAO:Natural	Adjusts all speakers to achieve a natural sound.
Through	Does not use the equalizer.



- "YPAO:Flat", "YPAO:Front" and "YPAO:Natural" are available only when the measurement results of "Auto Setup" have already been saved (p.33).

□ PEQ Data Copy

Copies the parametric equalizer values acquired with "Auto Setup" (p.33) to the "Manual" fields for fine adjustment.

Choices

Flat > Manual	Copies the "Flat" values acquired with "Auto Setup".
Front > Manual	Copies the "Front" values acquired with "Auto Setup".
Natural > Manual	Copies the "Natural" values acquired with "Auto Setup".

■ Manual equalizer adjustment

- 1 Set "PEQ Select" to "Manual" and press ENTER.
- 2 Use the cursor keys to select a speaker and press ENTER.
- 3 Use the cursor keys to select an item and press ENTER.

Band / Gain: You can select a center frequency from the preset 7 bands and adjust the gain.

Freq. / Gain: You can adjust the center frequency of the selected band and adjust the gain.

Q / Gain: You can adjust the Q factor (bandwidth) of the selected band and adjust the gain.

Clear: Restores the default settings for the selected speaker.

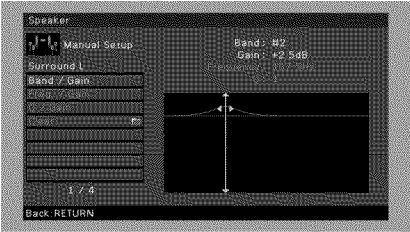
- 4 Use the cursor keys to adjust parameters and press ENTER.

Setting range

Gain: -20.0dB ~ +6.0dB (0.5dB steps)

Center frequency: 31.3Hz ~ 16.0kHz

Q factor: 0.500 ~ 10.08



- 5 To exit from the menu, press ON SCREEN.

■ Test Tone

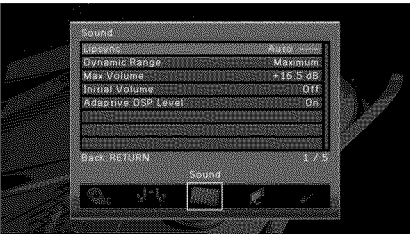
Enables/disabled the test tone output. Test tone output helps you to adjust the speaker balance or equalizer while confirming its effect.

Settings

Off (default)	Does not output test tones.
On	Outputs test tones automatically when you adjust the speaker balance, equalizer, etc.

Sound

Configures the audio output settings.



Lipsync

Adjusts the delay between video and audio output.

Auto

Adjusts the delay between video and audio output automatically when a TV that supports an automatic lipsync function is connected to this unit via HDMI. If necessary, you can fine-adjust the audio output timing. "Offset" shows the difference between automatic adjustment and fine adjustment.

Setting range

0ms ~ 250ms (1ms steps)

Default

0ms

Manual

Adjusts the delay between video and audio output manually.

Setting range

0ms ~ 250ms (1ms steps)

Default

0ms

Dynamic Range

Selects the dynamic range adjustment method for bitstream audio (Dolby Digital and DTS signals) playback.

Settings

Maximum (default)	Produces audio without adjusting the dynamic range.
Standard	Optimizes the dynamic range for regular home use.
Minimum/Auto	Sets the dynamic range to make clear sound even at night or at low volumes. When playing back Dolby TrueHD signals, the dynamic range is automatically adjusted based on the input signal information.

Max Volume

Sets the maximum volume so that sound is not too loud.

Setting range

-30.0dB ~ +15.0dB (5.0dB steps), +16.5dB

Default

+16.5dB

Initial Volume

Sets the initial volume for when this receiver is turned on.

Settings

Off (default)	Sets at the level when this unit last entered standby mode.
On	Sets at Mute, or -80.0dB ~ +16.5dB (0.5dB steps). (This setting works only when "Max Volume" is set higher.)

Adaptive DSP Level

Selects whether to automatically adjust the CINEMA DSP effect level in conjunction with volume adjustments.

Settings

Off	Does not adjust the effect level automatically.
On (default)	Adjusts the effect level automatically.

Video

Configures the video output settings.



Analog to Analog Conversion

Enables/disables the video conversion (p.120) between the analog video jacks (COMPONENT VIDEO and VIDEO).

Settings

Off	Disables the video conversion between the analog video jacks.
On (default)	Enables the video conversion between the analog video jacks. Converted video signals are output from the MONITOR OUT jacks only.



- This unit does not convert 480-line and 576-line video signals interchangeably.
- 480p/576p-, 1080i- and 720p-resolution video signals cannot be output from the VIDEO jacks (p.120).

Processing

Enables/disables the video signal processing (resolution and aspect ratio).

Settings

Off (default)	Disables the video signal processing.
On	Enables the video signal processing. Select a resolution and an aspect ratio in "Resolution" and "Aspect".



- 720p-, 1080i- and 1080p-resolution video signals cannot be converted (p.120).

Resolution

Selects a resolution to output HDMI video signals when "Processing" is set to "On".

Settings

Through	Does not convert the resolution.
Auto (default)	Selects a resolution automatically in accordance with TV resolution.
480p, 720p, 1080i, 1080p	Output video signals with a selected resolution. (Only the resolutions supported by your TV are selectable.)



- If you need to select a resolution that is not supported by your TV, set "MON.CHK" (p.103) in the "ADVANCED SETUP" menu to "SKIP" and try again. (Note that output videos may not be displayed on your TV normally.)

Aspect

Selects an aspect ratio to output HDMI video signals when "Processing" is set to "On".

Settings

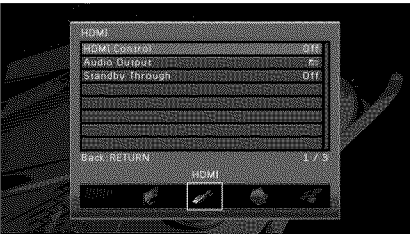
Through (default)	Does not convert the aspect ratio.
16:9 Normal	Outputs 4:3 video signals to a 16:9 TV with black bands on either side of the screen.



- This setting functions only when 480i/576i or 480p/576p signals are converted into 720p, 1080i or 1080p signals.

HDMI

Configures the settings related to HDMI.



HDMI Control

Enables/disables HDMI Control (p.121).

Settings

Off (default)	Disables HDMI Control.
On	Enables HDMI Control. Configure the settings in "TV Audio Input", "ARC" and "Standby Sync".



- To use HDMI control, you need to perform the HDMI Control link setup (p.121) after connecting HDMI Control-compatible devices.

TV Audio Input

Selects an audio input jack of this unit to be used for TV audio input when "HDMI Control" is set to "On".

The input source of this unit automatically switches to TV audio (input jack selected in here) when the TV input is switched to its built-in tuner.

Settings

AV1~6, AUDIO1~2

Default

AV4



- When using ARC to input TV audio to this unit, you cannot use the input jacks selected in here for connecting an external device because the input will be used for TV audio input.

ARC

Enables/disables ARC (p.21) when "HDMI Control" is set to "On".

Settings

Off	Disables ARC.
On (default)	Enables ARC.



- You do not need to change this setting normally. In case noises are produced from the speakers connected to this unit because TV audio signals input to this unit via ARC are not supported by this unit, set "ARC" to "Off" and use the TV speaker.

Standby Sync

Select whether to set this unit to standby in conjunction with TV power-off when "HDMI Control" is set to "On".

Settings

Off	Does not set this unit to standby mode in conjunction with TV power-off.
On	Sets this unit to standby mode in conjunction with TV power-off.
Auto (default)	Sets this unit to standby mode in conjunction with TV power-off only when this unit is receiving TV audio or HDMI signals.

Audio Output

Selects a device to output audio (input through HDMI jacks).



- The "Audio Output" settings are available only when "HDMI Control" is set to "Off".

Amp

Enables/disables the audio output from the speakers connected to this unit.

Settings

Off	Disables the audio output from the speakers.
On (default)	Enables the audio output from the speakers.

HDMI OUT (TV)

Enables/disables the audio output from a TV connected to the HDMI OUT jack.

Settings

Off (default)	Disables the audio output from the TV.
On	Enables the audio output from the TV.

■ Standby Through

Select whether to output videos/audio (input through HDMI jacks) to the TV when this unit is in standby mode.

Settings

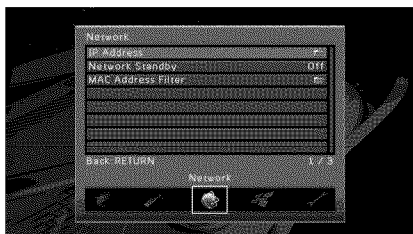
Off (default)	Does not output videos/audio to the TV.
On	Outputs videos/audio to the TV. (This unit consumes approximately 3 W of power.)



- This setting is available only when “HDMI Control” is set to “Off”.

Network

Configures the network settings.



■ IP Address

Configures the network parameters (IP address, etc).

□ DHCP

Select whether to use a DHCP server.

Settings

Off	Does not use a DHCP server. Configure the network parameters manually.
On (default)	Uses a DHCP server to automatically obtain the network parameters (IP address, etc.) of this unit.

□ Manual Setup

Configures the network parameters of this unit manually when “DHCP” is set to “Off”.

Submenu

IP Address	Specifies an IP address.
Subnet Mask	Specifies a subnet mask.
Default Gateway	Specifies the IP address of the default gateway.
DNS Server (P)	Specifies the IP address of the primary DNS server.
DNS Server (S)	Specifies the IP address of the secondary DNS server.

■ Network Standby

Selects whether to turn on this unit by the command from other network devices (network standby).

Settings

Off (default)	Disables the network standby function.
On	Enables the network standby function. (This unit consumes approximately 5 W of power.)

■ MAC Address Filter

Sets the MAC address filter to limit access to this unit from other network devices.

□ Mode

Enables/disables the MAC address filter.

Settings

Off (default)	Disables the MAC address filter.
On	Enables the MAC address filter. In “Address Setup”, specify the MAC addresses of the network devices that will be permitted access to this unit.

□ Address Setup

Specifies the MAC addresses (up to 10) of the network devices that will be permitted access to this unit when “Mode” is set to “On”.

Multi Zone

Configures the multi zone settings.



Zone2 Set

Configures the audio output settings for Zone2.



- The “Zone2 Set” settings are available only when “Power Amp Assign” (p.90) is set to “7ch+1ZONE”

Max Volume

Sets the Zone2 maximum volume so that sound is not too loud.

- Setting range**
-30.0dB ~ +15.0dB (5.0dB steps), +16.5dB
- Default**
+16.5dB

Initial Volume

Sets the Zone2 initial volume for when this unit is turned on.

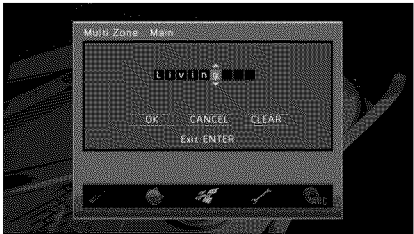
Settings	
Off (default)	Sets at the level when this unit last entered standby mode.
On	Sets at Mute, or -80.0dB ~ +16.5dB (0.5dB steps). (This setting works only when “Max Volume” is set higher.)

Zone Rename

Changes the zone names displayed on the TV screen.

Setup procedure

- 1 Use the cursor keys to select a zone to be renamed and press ENTER.
- 2 Press ENTER, use the cursor keys to rename, and then press ENTER again.



- 3 Use the cursor keys to select “OK” and press ENTER.

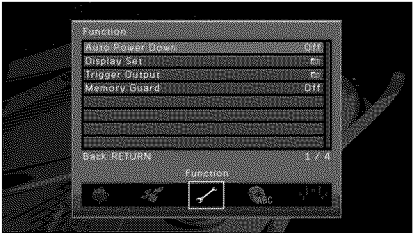


- To clear the entry, select “CLEAR”.

- 4 To exit from the menu, press ON SCREEN.

Function

Configures the functions that make this unit easier to use.



Auto Power Down

Sets the amount of time for auto-standby. If you do not operate this unit for the specified time, this unit will automatically go into standby mode.

Settings	
Off (default)	Does not set this unit to standby mode automatically.
4 Hours, 8 Hours, 12 Hours	Sets this unit to standby mode when you have not operated this unit for the specified time.

■ Display Set

Configures the settings related to the front display and TV screen display.

□ Front Panel Display

Configures the front display settings.

Dimmer

Adjusts the brightness of the front display.

Setting range

-4 ~ 0 (higher to brighten)

Default

0

Scroll

Sets the scrolling manner of the front display.

The display scrolls automatically if the text exceeds 14 characters.

Settings

Continue (default)	Sets the display to scroll continuously.
Once	Sets the display to scroll all characters once and then halt scrolling for display of the first 14 characters.

□ Short Message

Selects whether to display short messages on the TV screen when this unit is operated (input selection, volume adjustment, etc).

Settings

On (default)	Displays short messages on the TV screen.
Off	Does not display short messages on the TV screen.

□ Wall Paper

Selects a wall paper displayed on the TV.

Settings

Picture1, Picture2, Picture3	Displays the selected image on the TV screen when there is no video signal.
Gray	Displays a gray background on the TV screen when there is no video signal.

■ Trigger Output

Sets the TRIGGER OUT jack to function synchronized with power status of each zone or input switching.

□ Trigger Mode

Specifies the condition for the TRIGGER OUT jack to function.

Settings

Power (default)	The TRIGGER OUT jack functions synchronized with the power status of the zone specified with "Target Zone."
Source	The TRIGGER OUT jack functions synchronized with the input switching in the zone specified with "Target Zone." Electronic signal is transmitted according to the setting made in "Target Source."
Manual	Select this to manually switch the output level for electronic signal transmission with "Manual."

□ Target Zone

Specifies the zone with which the TRIGGER OUT jack functions synchronized.

Settings

Main	When "Trigger Mode" is set to "Power," electronic signal transmission is synchronized with power status of the main zone. When "Trigger Mode" is set to "Source," electronic signal transmission is synchronized with input switching in the main zone.
Zone2	When "Trigger Mode" is set to "Power," electronic signal transmission is synchronized with power status of Zone2. When "Trigger Mode" is set to "Source," electronic signal transmission is synchronized with input switching in Zone2.
All (default)	When "Trigger Mode" is set to "Power," electronic signal transmission is synchronized with power status of the main zone or Zone2. When "Trigger Mode" is set to "Source," electronic signal transmission is synchronized with input switching in the main zone or Zone2.

❑ **Target Source**

Specifies the output level of the electronic signal transmitted with each input switching when “Trigger Mode” is set to “Source”.

Choices

HDMI1~5, AV1~6, V-AUX, AUDIO1~2, TUNER, Sirius Satellite Radio, (network sources), USB, DOCK

Settings

Low	Stops the electronic signal transmission when you switch to the input source specified in this option.
High (default)	Transmits the electronic signal when you switch to the input source specified in this option.

❑ **Manual**

Switches the output level for electronic signal transmission manually when “Trigger Mode” is set to “Manual”. This setting can also be used to confirm proper function of the external component connected via the TRIGGER OUT jack.

Choices

Low	Stops the electronic signal transmission.
High (default)	Transmits the electronic signal.

■ **Memory Guard**

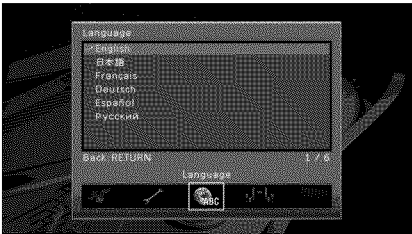
Prevents accidental changes to the settings.

Settings

Off (default)	Does not protect the settings.
On	Protects the settings until “Off” is selected.

Language

Select an on-screen menu language.



Settings

English (default)	English
日本語	Japanese
Français	French
Deutsch	German
Español	Spanish
Русский	Russian

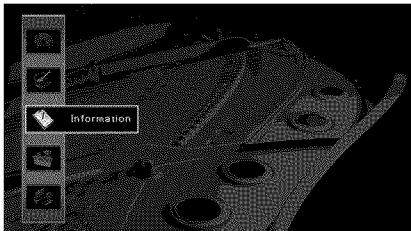


- The information on the front display is provided in English only.

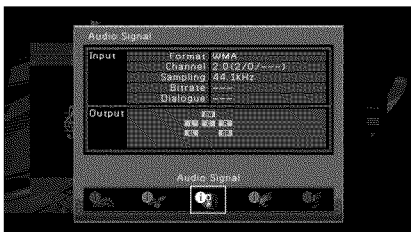
Viewing information about this unit (Information menu)

You can view information about this unit using the TV screen.

- 1 Press **ON SCREEN**.
- 2 Use the cursor keys to select **"Information"** and press **ENTER**.



- 3 Use the cursor keys (**◀/▶**) to select an information type.



- 4 To exit from the menu, press **ON SCREEN**.

Types of information

■ Audio Signal

Displays information about the current audio signal.

Input	Format	Audio format of the input signal
	Channel	The number of source channels in the input signal (front/surround/LFE) For example, "5.1 (3/2/0.1)" means 5.1ch in total (3 front channels, 2 surround channels, and LFE).
	Sampling	The number of samples per second of the input digital signal
	Bitrate	The amount of data per second of the input bitstream signal
	Dialogue	The dialogue normalization level of the input bitstream signal
Output	The speaker terminals from which signals are output	



- Even when this unit is set to output bitstream signals directly, the signal may be converted depending on the specifications and settings of the playback device.

■ Video Signal

Displays information about the current video signal.

HDMI Signal	Presence or absence of HDMI signal input/output
HDMI Resolution	Resolutions of input signal (analog or HDMI) and output signal (HDMI)
Analog Resolution	Resolutions of input signal (analog) and signal output at the MONITOR OUT jacks (analog)
HDMI Error	Errors related to HDMI HDCP Error: The TV does not support HDCP (High-bandwidth Digital Content Protection). Device Over: The number of devices connected to the HDMI OUT jack is over the limit.

HDMI Monitor

Displays information about the TV connected to the HDMI OUT jack.

Interface	TV interface
Video Resolution	Resolutions supported by the TV

Network

Displays the network information on this unit.

IP Address	IP address
Subnet Mask	Subnet mask
Default Gateway	The IP address of the default gateway
DNS Server (P)	The IP address of the primary DNS server
DNS Server (S)	The IP address of the secondary DNS server
MAC Address	MAC address
Status	Network connection status

System

Displays the system information on this unit.

Remote ID	The remote control ID setting of the main unit (p.102)
TV Format	The video signal type setting of this unit (p.102)
Speaker Impedance	The speaker impedance setting of this unit (p.102)
System ID	System ID number
Firmware Version	The version of firmware installed on this unit



- If this unit detects a newer firmware over the network, "!" (exclamation mark) appears at the upper right of the "Information" and "System" icons, and the corresponding message will be displayed in this screen. You can update the firmware of this unit by pressing ENTER in this screen and following the procedure in "Updating the firmware of this unit" (p.107).


Zone

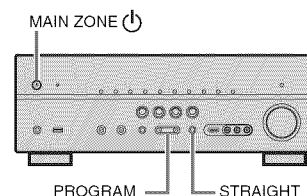
Displays information about Zone2.


Input	The input source selected for Zone2
Volume	The volume setting for Zone2

Configuring the system settings (ADVANCED SETUP menu)

You can configure the system settings of this unit using the front display.

- 1 Set this unit to standby mode.
- 2 While holding down STRAIGHT on the front panel, press MAIN ZONE .



- 3 Press PROGRAM to select an item.
- 4 Press STRAIGHT to select a setting.
- 5 Press MAIN ZONE  to set this unit to standby mode and turn it on again.

The new settings become effective.

ADVANCED SETUP menu items

Item	Function	Page
SP IMP.	Changes the speaker impedance setting.	102
REMOTE ID	Selects the remote control ID of the main unit.	102
SR LOCK	Resets the Parental Lock code number for SIRIUS Satellite Radio.	102
TV FORMAT	Switches the video signal type.	102
MON.CHK	Removes the limitation on HDMI video output.	103
INIT	Restores the default settings.	103
UPDATE	Updates the firmware.	103
VERSION	Checks the version of firmware currently installed on this unit.	103

Changing the speaker impedance setting (SP IMP.)



Change the speaker impedance settings of unit depending on the impedance of the speakers connected.

Settings	
6 Ω MIN	Select this when you connect 6-ohm speakers to this unit. You can also use 4-ohm speakers as the front speakers.
8 Ω MIN (default)	Select this when you connect 8-ohm or higher speakers to this unit.

Selecting the remote control ID (REMOTE ID)



Select the remote control ID of the main unit so that it matches to the ID of the remote control (default: ID1). When using multiple Yamaha AV receivers, you can set each remote control with a unique remote control ID for its corresponding receiver.

Settings
ID1 (default), ID2

Changing the remote control ID of the remote control

Perform each of the following steps within 1 minute. Otherwise, the setting will be automatically canceled.

- 1 Press **CODE SET** on the remote control using a pointed object such as the tip of a ballpoint pen.
- 2 Press **SOURCE/RECEIVER**.
- 3 Use the numeric keys to enter “5019” (ID1) or “5020” (ID2).

Once the remote control ID is registered successfully, SOURCE/RECEIVER blinks twice. If it blinks 6 times, registration failed. Repeat from step 1.



- The registered remote control codes (p.104) are not cleared even if you change the remote control ID.

Resetting the Parental Lock code number (SR LOCK)



Reset the Parental Lock code number for SIRIUS Satellite Radio.

Choices	
RESET	Resets the Parental Lock code number.
CANCEL	Does not perform a reset.

Switching the video signal type (TV FORMAT)



Switch the video signal type of this unit so that it matches to the format of your TV.

Settings
NTSC (default), PAL

Removing the limitation on HDMI video output (MON.CHK)



This unit automatically detects resolutions supported by a TV connected to the HDMI OUT jacks.
If you want to select a resolution in “Resolution” (p.94) regardless of the detection results or if this unit does not detect it correctly, disable the monitor check function.

Settings	
YES (default)	Enables the monitor check function. (Outputs video signals with a resolution supported by the TV only.)
SKIP	Disables the monitor check function. (Outputs video signals with a specified resolution regardless of compatibility with the TV.)



- In case this unit becomes inoperable because videos from this unit cannot be displayed on the TV after “MON.CHK” is set to “SKIP”, reset the setting to “YES”.

Restoring the default settings (INIT)



Restores the default settings for the selected item.

Choices	
VIDEO	Restores the default settings for video configurations.
ALL	Restores the default settings for this unit.
CANCEL	Does not perform an initialization.

Updating the firmware (UPDATE)

New firmware will be released irregularly for the purpose of additional features or product improvements. It can be downloaded from our website. If this unit is connected to the Internet, you can download the firmware via the network. For details, refer to the information supplied with updates.



Firmware update procedure

Do not perform this procedure unless firmware update is necessary. Also, make sure you read the information supplied with updates before updating the firmware.

- 1 Press **STRAIGHT** repeatedly to select “USB” or “NETWORK” and press **INFO** to start firmware update.

Choices	
USB	Update the firmware using a USB memory device.
NETWORK	Update the firmware via the network.



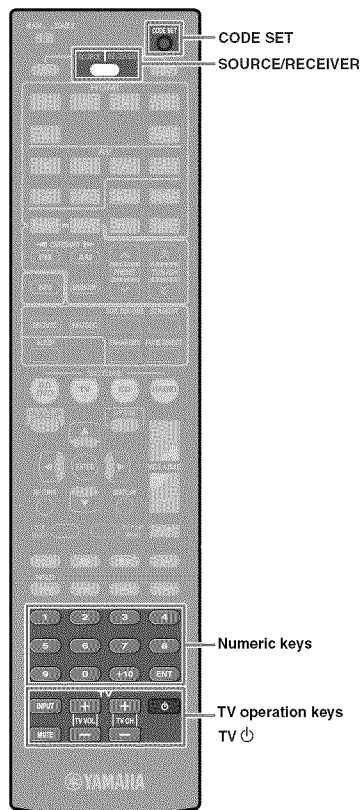
- If this unit detects a newer firmware over the network, the corresponding message will be displayed after **ON SCREEN** is pressed. In this case, you can also update the firmware of this unit by following the procedure in “Updating the firmware of this unit” (p.107).

Checking the firmware version (VERSION)

Check the version of firmware currently installed on this unit.



- You can also check the firmware version in “System” (p.101) in the “Information” menu.



Controlling external devices with the remote control

By setting the code for external devices (BD/DVD players, etc.), you can operate it with the remote control of this unit.



- You cannot control an external device that does not have a remote control sensor.
- Make sure the remote control ID of the external device is set to "ID1". If any other ID is selected, the remote control operations may not work properly.
- If the remote control is without batteries for more than 2 minutes, the registered codes may be cleared. In this case, insert new batteries and setting the codes again.



- When HDMI control of both this unit and playback device such as a BD/DVD player are enabled, you may be able to control the device with the remote control without registering the remote control code.

Setting the remote control code for a TV

By setting the remote control code for your TV, you can operate it with the remote control of this unit.



- You can also register a remote control code of your TV to the input selection keys (p.105). In this case, you can use the cursor keys or numeric keys to operate the TV depending on its model. However, you need to press the corresponding input selection key to play back TV audio on this unit.

1 Use "Remote Control Code Search" in the CD-ROM to find a remote control code for your TV.



- If multiple remote control codes exist, first set the first code in the list, if it does not work then try the other codes.

2 Press CODE SET using a pointed object such as the tip of a ballpoint pen.

SOURCE/RECEIVER blinks twice.

Perform each of the following steps within 1 minute.

Otherwise, the setting will be canceled. In this case, repeat from step 2.

3 Press TV


4 Use the numeric keys to enter the 4-digit remote control code.

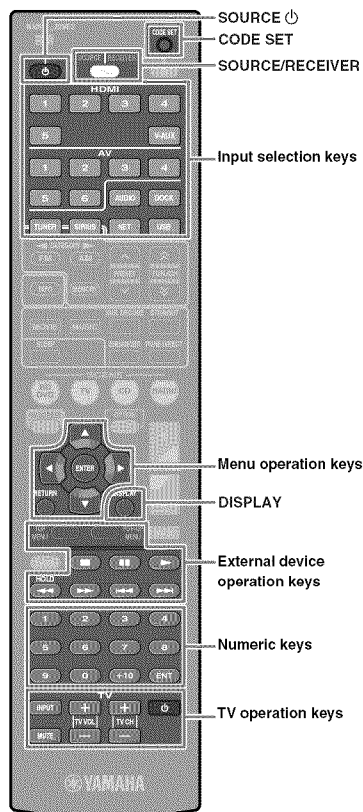
Once the remote control code is set successfully, SOURCE/RECEIVER blinks twice.

If it blinks 6 times, registration failed. Repeat from step 2.

TV operations

Once you have set the remote control code for your TV, you can control it using the TV operation keys regardless of an input source selected on this unit.

TV operation keys	INPUT	Switches the video inputs of the TV.
	MUTE	Mutes the audio output of the TV.
	TV VOL	Adjust the volume of the TV.
	TV CH	Switch the channels of the TV
	TV 	Turns on/off the TV.



Setting the remote control codes for playback devices

By setting the remote control codes for your playback devices, you can operate those devices with the remote control of this unit. Since the codes are assigned to each input source key, you can select the input source and device to control with the remote control concurrently.



- At the factory, Yamaha CD player code (5095) is set for AV3. For the other input selection keys, no codes are set.

1 Use “Remote Control Code Search” in the CD-ROM to find a remote control code for your playback device.



- If multiple remote control codes exist, first set the first code in the list, if it does not work then try the other codes.

2 Press CODE SET using a pointed object such as the tip of a ballpoint pen.

SOURCE/RECEIVER blinks twice.

Perform each of the following steps within 1 minute.

Otherwise, the setting will be canceled. In this case, repeat from step 2.

3 Press a corresponding input selection key.

For example, press HDMI1 to set the remote control code for the playback device connected to the HDMI1 jack.

4 Use the numeric keys to enter the 4-digit remote control code.

Once the remote control code is registered successfully, SOURCE/RECEIVER blinks twice.

If it blinks 6 times, registration failed. Repeat from step 2.



- For details on how to register the input selection key applied the remote control code on a corresponding SCENE key, refer to “Configuring scene assignments” (p.39).

Playback device operations

Once you have registered the remote control code for your playback device, you can control it using the following keys after selecting the input source or scene.

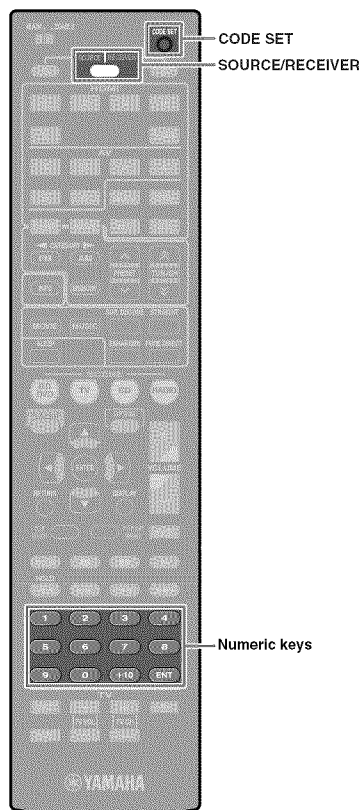


- By pressing SOURCE/RECEIVER, you can switch the devices (this unit or external device) to operate with the menu operation keys, DISPLAY and numeric keys. You can operate this unit when SOURCE/RECEIVER lights up in orange, and an external device when SOURCE/RECEIVER lights up in green. For example, if you register the remote control code of your external device on TUNER, you can operate FM/AM radio built in this unit when SOURCE/RECEIVER lights up in orange, and the external device when SOURCE/RECEIVER lights up in green.

SOURCE		Turns on/off the playback device.
Menu operation keys	Cursor keys	Select an item.
	ENTER	Confirms a selected item.
	RETURN	Returns to the previous screen.
DISPLAY		Switches information on the display.
External device operation keys	TOP MENU	Displays the top menu.
	POP-UP MENU	Displays the pop-up menu.
		Stops playback.
		Stops playback temporarily.
		Starts playback of the selected song/video.
		Search forward/backward (by holding down).
		Skip forward/backward.
Numeric keys		Enter numerical values.
TV operation keys		Control the TV (p.104).



- These keys work only when the corresponding function is available on your playback device and is possible to be operated with an infrared remote control.



Resetting remote control codes

You can clear all remote control codes and restore the default settings.

- 1 Press CODE SET using a pointed object such as the tip of a ballpoint pen.**

SOURCE/RECEIVER blinks twice.

Perform each of the following steps within 1 minute.

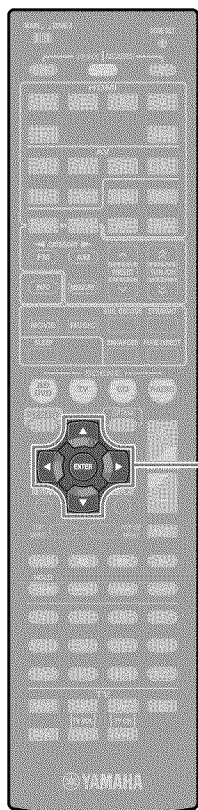
Otherwise, the setting will be canceled. In this case, repeat from step 1.

- 2 Press SOURCE/RECEIVER.**

- 3 Use the numeric keys to enter “9981”.**

Once the remote control codes are reset successfully, SOURCE/RECEIVER blinks twice.

If it blinks 6 times, resetting failed. Repeat from step 1.



Cursor keys
ENTER

Updating the firmware of this unit

If this unit is connected to the Internet, the corresponding message will be displayed on the TV when a newer firmware is available. In this case, follow the procedure below to update the firmware of this unit.

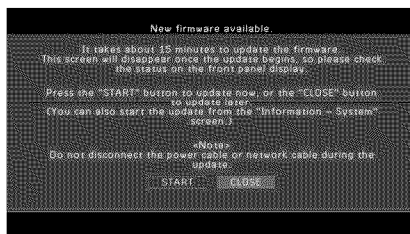
Note

- Do not operate this unit or disconnect the power cable or network cable during firmware update. Firmware update takes about 15 minutes.




- You can also update the firmware using the USB memory device from the "ADVANCED SETUP" menu (p.103).

If the following message is displayed after ON SCREEN is pressed, firmware update is available.



- 1 Read the on-screen description.
- 2 To start the firmware update, use the cursor keys to select "START" and press ENTER.

The on-screen display turns off.

- 3 If "UPDATE SUCCESS PLEASE POWER OFF!" appears on the front display, press MAIN ZONE  on the front panel.

The firmware update is complete.



- If you want to update the firmware later, select "CLOSE" in step 2. In this case, "!" (exclamation mark) appears at the upper right of the "Information" and "System" icons, and the corresponding message will be displayed in the "System" screen (p.101). You can update the firmware of this unit by pressing ENTER in the "System" screen.



APPENDIX

Frequently asked questions

The new speaker system does not provide an ideal sound balance...

If you have changed speakers or speaker system, use “Auto Setup” to optimize the speaker settings again (p.33). If you want to adjust the speaker settings manually, use “Manual Setup” in the “Setup” menu (p.90).

Since we have small children, we want to set limitations on the volume control...

If a small child, etc. accidentally operates the controls on the main unit or remote control, the volume may suddenly increase. And this may cause injury or damage this unit or speakers. We recommend using “Max Volume” in the “Setup” menu to set the maximum volume level for this unit in advance (p.93). You can also set the maximum volume for Zone2 (p.97).

I am occasionally startled by a sudden large sound when turning on this unit...

By default, the volume level when this unit last entered standby mode is automatically applied. If you want to fix the volume, use “Initial Volume” to set the volume to be applied when this receiver is turned on (p.93). You can also set the initial volume for Zone2 (p.97).

I made HDMI connections but HDMI Control does not work at all...

To use HDMI Control, you need to perform the HDMI Control link setup (p.121). After connecting HDMI Control-compatible devices (TV, BD/DVD players, etc.) to this unit, enable HDMI Control on each device and perform the HDMI Control link setup. This setup is required every time when you add a new HDMI Control-compatible device to your system. For information on how HDMI Control works between your TV and playback devices, refer to the instruction manuals of each device.

I want to turn off the on-screen messages displayed during operations...

By default, short messages are displayed on the TV screen when this unit is operated (input selection, volume adjustment, etc). In case that the short messages bother you when you are watching movies or sports, configure “Short Message” (p.98) in the “Setup” menu to turn off the short messages.

I want to prevent accidental changes to the settings...

You can protect the settings configured on this unit (speaker settings, etc.) by utilizing “Memory Guard” in the “Setup” menu (p.99).

The web control screen (p.73) becomes inaccessible...

If you are using a DHCP server, the IP address of this unit may change each time this unit is turned on. Check the IP address of this unit in “Network” (p.101) in the “Information” menu. Also, if you have enabled “MAC Address Filter” (p.96), you need to specify the MAC address of your PC in “Address Setup” (p.96) to allow the PC to access this unit. For information on how to check the MAC address of your PC, refer to the instruction manuals of it.

The supplied remote control concurrently controls this unit and another Yamaha product that is not intended...

When using multiple Yamaha products, the supplied remote control may work on another Yamaha product or another remote control may work on this unit. In this case, set each remote control with a unique remote control ID for its corresponding receiver (p.102).

Troubleshooting



Refer to the table below when this unit does not function properly.

If the problem you are experiencing is not listed below, or if the instructions below do not help, turn off this unit, disconnect the power cable, and contact the nearest authorized Yamaha dealer or service center.

First, check the followings:

- ① **The power cables of this unit, TV and playback devices (BD/DVD player, etc.) are connected to AC outlets securely.**
- ② **This unit, subwoofer, TV and playback devices (BD/DVD player, etc.) are turned on.**
- ③ **The connectors of each cable are inserted to jacks on each devices securely.**

Power and system

Problem	Cause	Remedy
The power does not turn on.	The protection circuitry has been activated 3 times consecutively.	As a safety precaution, capability to turn on the power is disabled. Contact your nearest Yamaha dealer or service center to request repair.
The power does not turn off.	The internal microcomputer is hung-up due to an external electric shock (such as lightning and excessive static electricity) or by a drop in power supply voltage.	Hold down MAIN ZONE  on the front panel for more than 10 seconds to initialize and reboot this unit.
The power turns off (standby mode) immediately.	This unit was turned on while a speaker cable was shorted.	Twist the bare wires of each speaker cable firmly and reconnect to this unit and speakers (p.19).
The unit enters standby mode automatically.	The sleep timer worked.	Turn on the unit and start playback again.
	Since this unit was not operated for the specified time, auto-standby worked.	To disable auto-standby, set "Auto Power Down" in the "Setup" menu to "Off" (p.97).
	The speaker impedance setting is incorrect.	Set the speaker impedance to match your speakers (p.102).
	The protection circuitry has been activated because of a short circuit.	Twist the bare wires of each speaker cable firmly and reconnect to this unit and speakers (p.19).
This unit is uncontrollable.	The internal microcomputer is hung-up due to an external electric shock (such as lightning and excessive static electricity) or by a drop in power supply voltage.	Hold down MAIN ZONE  on the front panel for more than 10 seconds to initialize and reboot this unit.

Audio

Problem	Cause	Remedy
No sound.	Another input source is selected.	Select an appropriate input source with the input selection keys
	Signals that this unit cannot reproduce are being input.	Some digital audio formats cannot be played back on this unit. To check the audio format of the input signal, use "Audio Signal" in the "Information menu" (p.100).
	The cable connecting this unit and playback device is defective.	If there is no problem with the connection, replace with another cable.
The volume cannot be increased.	The maximum volume is set.	Use "Max Volume" in the "Setup" menu to adjust the maximum volume (p.93).
	Any device connected to the output jacks of this unit is not turned on. (This may happen due to the nature of AV receivers.)	Turn on all devices connected to the output jacks of this unit
No sound is heard from a specific speaker.	The playback source does not contain corresponding channel signals.	To check it, select "7ch Stereo" (p.40).
	The sound program/decoder currently selected does not use the corresponding speaker.	To check it, select "7ch Stereo" (p.40).
	Audio output of the corresponding speaker is disabled.	Perform "Auto Setup" (p.33) or use "Configuration" in the "Setup" menu to change the speaker setting (p.90).
	The volume of the corresponding speaker is too low.	Perform "Auto Setup" (p.33) or use "Level" in the "Setup" menu to adjust the speaker volume (p.92).
	The speaker cable connecting this unit and corresponding speaker is defective.	If there is no problem with the connection, replace with another speaker cable.
	The corresponding speaker is malfunctioning.	To check it, replacing with another speaker. If the problem persists, this unit may be malfunctioning.
No sound is heard from the surround back speaker.	The extended surround is disabled.	Use "Extended Surround" in the "Option" menu to select a decoder to be used (p.78).
No sound is heard from the subwoofer.	The playback source does not contain LFE or low-frequency signals.	To check it, set "Extra Bass" in the "Setup" menu to "On", to output the front channel low-frequency components from the subwoofer (p.91).
	Subwoofer output is disabled.	Perform "Auto Setup" (p.33) or set "Subwoofer" in the "Setup" menu to "Use" (p.91).
	The subwoofer is turned off by the auto-standby function on it.	Disable the auto-standby function of the subwoofer or adjust its sensitivity level.
No sound from the playback device (connected to this unit with HDMI).	The TV does not support HDCP (High-bandwidth Digital Content Protection).	To check it, use "Video Signal" in the "Information" menu (p.100).
	This unit is set not to output audio input through HDMI jacks from the SPEAKERS terminals.	In "Audio Output" in the "Setup" menu, set "Amp" to "On" (p.95).
	The number of devices connected to the HDMI OUT jack is over the limit.	Disconnect some of the HDMI devices.

Problem	Cause	Remedy
No sound from the TV (when HDMI Control is used).	(If the TV is connected to this unit with an audio cable) The TV audio input setting does not match the actual connection.	Use "TV Audio Input" in the "Setup" menu to select the correct audio input jack (p.95).
	(If you are trying to use ARC) ARC is disabled on this unit or TV.	Set "ARC" in the "Setup" menu to "On" (p.95). Also, enable ARC on the TV.
Only the front speakers work on multi-channel audio.	The playback device is set to output 2-channel audio (PCM, etc.) only.	Change the digital audio output setting on the playback device.
Noise/hum is heard.	This unit is too close to other digital or radio frequency device.	Move this unit further away from such device.
	The cable connecting this unit and playback device is defective.	If there is no problem with the connection, replace with another cable.
The sound is distorted.	Any device connected to the output jacks of this unit is not turned on. (This may happen due to the nature of AV receivers.)	Turn on all devices connected to the output jacks of this unit

Video

Problem	Cause	Remedy
No video.	Another input source is selected on this unit.	Select an appropriate input source with the input selection keys
	Another input source is selected on the TV.	Switch the TV input to display the video from this unit.
	The video signal output from this unit is not supported by the TV.	Set "MON.CHK" in the "ADVANCED SETUP" menu to "YES" (p.103).
	The cable connecting this unit and TV (or playback device) is defective.	If there is no problem with the connection, replace with another cable.
No video from the playback device (connected to this unit with HDMI).	The input video signal (resolution) is not supported by this unit.	To check the information about the current video signal (resolution), use "Video Signal" in the "Information" menu (p.100). For information about video signals supported by this unit, see "HDMI signal compatibility" (p.122).
	The TV does not support HDCP (High-bandwidth Digital Content Protection).	To check it, use "Video Signal" in the "Information" menu (p.100).
	The number of devices connected to the HDMI OUT jack is over the limit.	Disconnect some of the HDMI devices.

FM/AM radio

Problem	Cause	Remedy
FM radio reception is weak or noisy.	There is multi-path interference.	Adjust the FM antenna height or orientation, or place it in a different location.
	Your area is too far from the FM station transmitter.	Press MODE to select monaural FM radio reception (p.45).
		Use an outdoor FM antenna commercially available. We recommend using a sensitive multi-element antenna.
AM radio reception is weak or noisy.	The noises may be caused by fluorescent lamps, motors, thermostats, or other electrical equipment.	It is difficult to completely eliminate noise. It may be reduced by using an outdoor AM antenna commercially available.
Radio stations cannot be selected automatically.	Your area is too far from the FM station transmitter.	Select the station manually (p.45).
		Use an outdoor antenna commercially available. We recommend using a sensitive multi-element antenna.
	The AM radio signal is weak.	Adjust the AM antenna orientation.
		Select the station manually (p.45).
AM radio stations cannot be registered as presets.	"Auto Preset" has been used.	Use an outdoor AM antenna commercially available. Connect it to the ANTENNA (AM/GND) jack together with the supplied AM antenna.
		"Auto Preset" is for registering FM radio stations only. Register AM radio stations manually (p.45).

USB and network

Problem	Cause	Remedy
This unit does not detect the USB device.	The USB cable connecting this unit and USB device is not compliant with USB 2.0.	Use a USB cable compliant with USB 2.0.
Folders and files in the USB device cannot be viewed.	The folder structure not supported by this unit is applied.	This unit supports folder hierarchies of up to 8 levels and up to 500 items (total of files and subfolders) per folder. If necessary, modify the folder structure on your USB device.
The network feature does not function.	The network parameters (IP address) is not obtained properly.	Enable the DHCP server function on your router and set "DHCP" in the "Setup" menu to "On" on this unit (p.96). If you want to configure the network parameters manually, make sure using an IP address which is not used by other network devices in your network (p.96).
This unit does not detect the PC.	The media sharing setting is not correct.	Configure the sharing setting and select this unit as a device to which music contents are shared (p.64).
	Some security software installed on your PC is blocking the access of this unit to your PC.	Check the settings of security software installed on your PC.
	This unit and PC are not in the same network.	Check the network connections and the settings of your router to connect them to the same network.

Problem	Cause	Remedy
The files in the PC cannot be viewed or played back.	The files are not supported by this unit or the media server.	Use the file format supported by both this unit and the media server. For information about the file formats supported by this unit, see "Playing back music stored on PCs" (p.64).
The Internet radio cannot be played.	The selected Internet radio station is currently not available.	It may not be available to listen because there might be a network problem, or the station might be broadcasting in limited hour. Try the station later or select another station.
	The selected Internet radio station broadcasts audio silence currently.	Some Internet radio stations broadcast audio silence during particular periods of time in a day. Try the station later or select another station.
	Access to the network is restricted by the firewall settings of your network devices (router, etc).	Check the firewall settings of your network devices. The Internet radio can be played only when it passes through the port designated by each radio station. The port number is variable depending on radio station.

Remote control

Problem	Cause	Remedy
This unit cannot be controlled using the remote control.	Out of the operating range.	Use the remote control in the operating range (p.5).
	The batteries are weak.	Replace with new batteries.
	Direct sunlight or lighting is striking the remote control sensor of this unit.	Adjust the lighting angle, or reposition this unit.
	The remote control is set to control external devices.	Press RECEIVER/SOURCE to set the remote control to control this unit (the key lights up in orange).
	The remote control IDs of the main unit and remote control are not identical.	Change the remote control ID of the main unit or remote control (p.102).
External devices cannot be controlled using the remote control.	The remote control is set to control this unit.	Press RECEIVER/SOURCE to set the remote control to control external devices (the key lights up in green).
	The corresponding remote control code is not set properly.	Set the remote control code again (p.104). Even if the remote control code is registered properly set, some products may not respond to the remote control.

Error indications on the front display

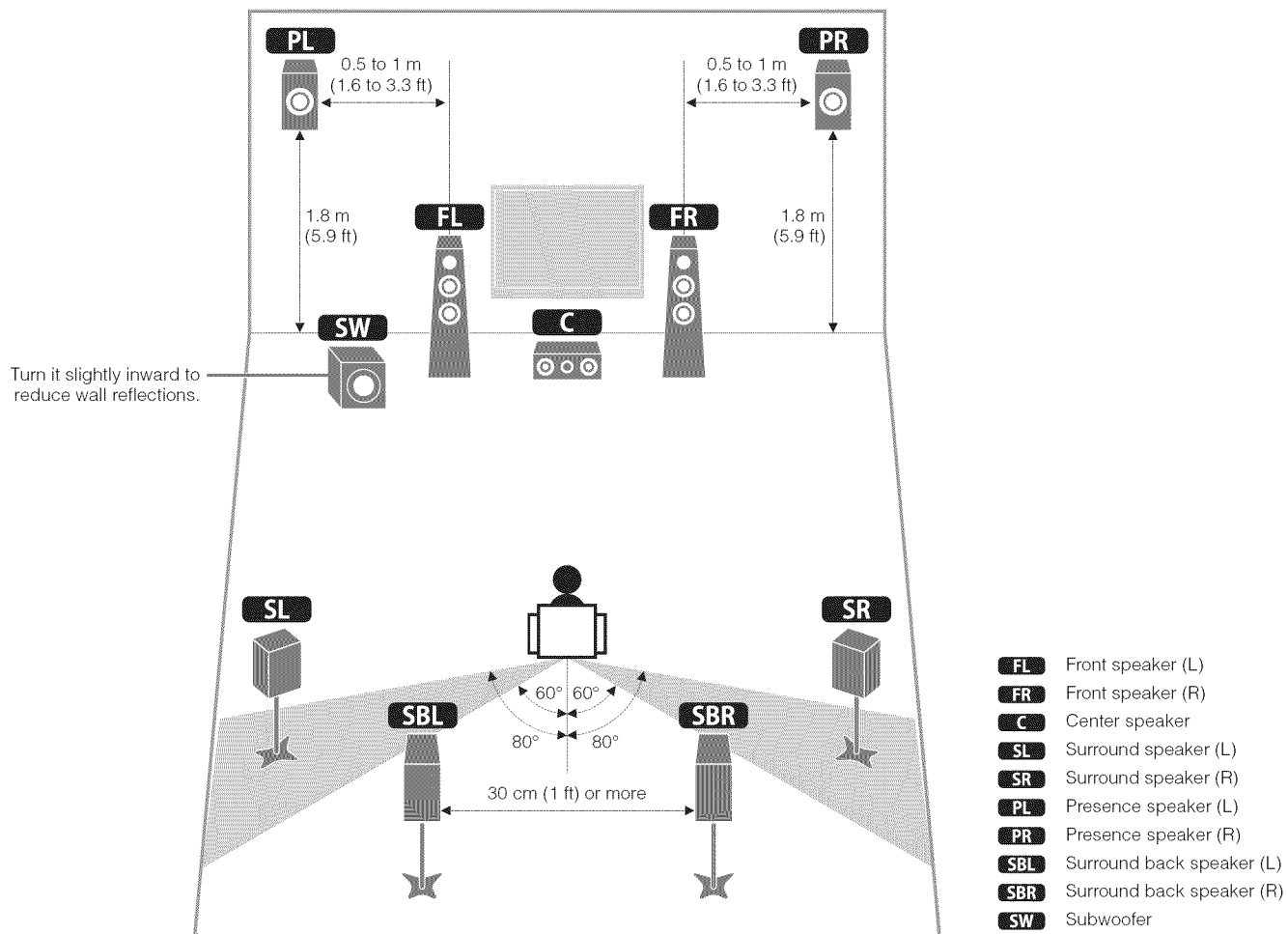
Message (alphabetical order)	Cause	Remedy
Access denied	Access to the PC is denied.	Configure the sharing setting and select this unit as a device to which music contents are shared (p.64).
Access error	This unit cannot access the USB device.	Turn off this unit and reconnect your USB device. If the problem persists, try another USB device.
	This unit cannot access the iPod connected to the USB jack.	Turn off the iPod and turn on it again.
	There is a problem with the signal path from the network to this unit.	Make sure your router and modem are turned on. Check the connection between this unit and your router (or hub) (p.30).
No device	This unit cannot detect the USB device.	Turn off this unit and reconnect your USB device. If the problem persists, try another USB device.
	This unit cannot detect the iPod connected to the USB jack.	Turn off the iPod and turn on it again.
Not found	The Bluetooth component is not found.	(When pairing) Turn on the Bluetooth component and set it in pairing mode.
		(When establishing a wireless connection) - Turn on the Bluetooth component. - Place the Bluetooth component within 10 m (32 ft) of the Bluetooth receiver. - Perform pairing again.
Unknown iPod	The connected iPod is not supported by the unit.	Use an iPod supported by this unit (p.54).
Unable to play	The unit cannot play back the songs stored on the iPod for some reasons.	Check the song data. If it cannot be played on the iPod itself, the song data or storage area may be defective.
	The unit cannot play back the songs stored on the PC for some reasons.	Check if the format of files you are trying to play is supported by this unit. For information about the formats supported by this unit, see "Playing back music stored on PCs" (p.64). If this unit cannot play back any files, the network may be overloaded with heavy traffic, and playback is interrupted.
USB Overloaded	Over current passes through the USB device.	Turn off this unit and reconnect your USB device. If the problem persists, try another USB device.

Error indications for SIRIUS Satellite Radio™

Message (alphabetical order)	Cause	Remedy
ACQUIRING SIG	The signal is too weak.	Adjust the orientation of the antenna of the SiriusConnect tuner by checking the antenna reception level displayed in the front display (p.51) or TV (p.51).
ANTENNA ERROR	The antenna is not connected to the SiriusConnect tuner properly.	Check the connection of the antenna and SiriusConnect tuner (p.48).
CALL SIRIUS	The selected channel is not currently subscribed.	To subscribe the selected channel, contact SIRIUS Satellite Radio. URL: https://activate.siriusradio.com/ Phone: 1-888-539-SIRIUS (1-888-539-7474)
CHECK SR TUNER	The SiriusConnect tuner is not connected to this unit or AC wall outlet properly.	Check the connection of the SiriusConnect tuner and this unit or AC wall outlet (p.48). SiriusConnect tuner to the AC wall outlet.
INVALID CH	The selected channel is currently out of service.	Try another channel.
NOT SUPPORTED	This unit does not support the connected SIRIUS Satellite Radio tuner.	Use the SiriusConnect tuner supported by this unit.

Ideal speaker layout

Use this diagram as guide. You do not need to adjust the speaker layout to the following diagram exactly.



Glossary

Audio information

Audio and video synchronization (Lipsync)

Lip sync, an abbreviation for lip synchronization, is a technical term that involves both a problem, and the capability of maintaining audio and video signals synchronized during post-production and transmission.

Whereas the audio and video latency requires complex end-user adjustment, HDMI version 1.3 incorporates an automatic audio and video syncing capability that allows devices to perform this synchronization automatically and accurately without user interaction.

Bi-amplification connection (Bi-amp)

A bi-amplification connection uses two amplifiers for a speaker. One amplifier is connected to the woofer section of a loudspeaker while the other is connected to the combined mid and tweeter section. With this arrangement each amplifier operates over a restricted frequency range. This restricted range presents each amplifier with a much simpler job and each amplifier is less likely to influence the sound in some way.

CINEMA DSP

Since the Dolby Surround and DTS systems were originally designed for use in movie theaters, their effect is best felt in a theater having many speakers designed for acoustic effects. Since home conditions, such as room size, wall material, number of speakers, and so on, can differ so widely, it is inevitable that there are differences in the sound that is heard. Based on a wealth of actually measured data, Yamaha CINEMA DSP uses Yamaha's original DSP technology to combine Dolby Pro Logic, Dolby Digital, and DTS systems to provide the audiovisual experience of a movie theater in the listening room of your own home.

CINEMA DSP 3D

The actually measured sound field data contain the information of the height of the sound images. CINEMA DSP 3D feature achieves the reproduction of the accurate height of the sound images so that it creates the accurate and intensive stereoscopic sound fields in a listening room.

Compressed Music Enhancer

The Compressed Music Enhancer feature of this unit enhances your listening experience by regenerating the missing harmonics in compression artifacts. As a result, it compensates for flattened complexity due to the loss of high-frequency fidelity as well as lack of bass due to the loss of low-frequency bass, providing improved performance for the overall sound system.

Dolby Digital

Dolby Digital is a digital surround sound system that gives you completely independent multi-channel audio. With 3 front channels (front L/R and center), and 2 surround stereo channels, Dolby Digital provides 5 full-range audio channels. With an additional channel especially for bass effects, referred to as LFE (Low-Frequency Effect), the system has a total of 5.1-channels (LFE is counted as 0.1 channel). By using 2-channel stereo for the surround speakers, more accurate moving sound effects and surround sound environments are possible than with Dolby Surround. The wide dynamic range from maximum to minimum volumes that are reproduced by the 5 full-range channels, and the precise sound orientation generated using digital sound processing provides listeners with unprecedented excitement and realism. With this unit, any sound environment from monaural up to a 5.1-channel configuration can be freely selected for your enjoyment.

Dolby Digital Plus

Dolby Digital Plus is an advanced audio technology developed for highdefinition programming and BD (Blu-ray disc). Selected as an optional audio standard for BD, this technology delivers multichannel sound with discrete channel output. Supporting bitrates up to 6.0 Mbps, Dolby Digital Plus can carry up to 7.1 discreet audio channels simultaneously. Supported by HDMI version 1.3 and designed for the optical disc players and AV receivers/amplifiers of the future, Dolby Digital Plus also remains fully compatible with the existing multichannel audio systems that incorporate Dolby Digital.

Dolby Pro Logic II

Dolby Pro Logic II is an improved technique used to decode vast numbers of existing Dolby Surround sources. This new technology enables a discrete 5-channel playback with 2 front left and right channels, 1 center channel, and 2 surround left and right channels, instead of only 1 surround channel for conventional Pro Logic technology. There are three modes available: "Music mode" for music sources, "Movie mode" for movie sources, and "Game mode" for game sources.

Dolby Pro Logic IIx

Dolby Pro Logic IIx is a new technology enabling discrete multichannel playback from 2-channel or multi-channel sources. There are three modes available: "Music mode" for music sources, "Movie mode" for movie sources (for 2-channel sources only) and "Game mode" for game sources.

Dolby Surround

Dolby Surround uses a 4-channel analog recording system to reproduce realistic and dynamic sound effects: 2 front left and right channels (stereo), a center channel for dialog (monaural), and a surround channel for special sound effects (monaural). The surround channel reproduces sound within a narrow frequency range. Dolby Surround is widely used with nearly all video tapes and laser discs, as well as in many TV and cable broadcasts. The Dolby Pro Logic decoder built into this unit employs a digital signal processing system that automatically stabilizes the volume on each channel to enhance moving sound effects and directionality.

Dolby TrueHD

Dolby TrueHD is an advanced lossless audio technology developed for high-definition disc-based media including Blu-ray Disc. Selected as an optional audio standard for BD (Blu-ray disc), this technology delivers sound that is bit-for-bit identical to the studio master, offering a high-definition home theater experience. Supporting bitrates up to 18.0 Mbps, Dolby TrueHD can carry up to 8 discrete channels of 24-bit/96 kHz audio simultaneously. Dolby TrueHD also remains fully compatible with the existing multichannel audio systems and retains the metadata capability of Dolby Digital, allowing dialog normalization and dynamic range control.

DTS 96/24

DTS 96/24 offers an unprecedented level of audio quality for multichannel sound on DVD video, and is fully backward-compatible with all DTS decoders. "96" refers to a 96 kHz sampling rate compared to the typical 48 kHz sampling rate. "24" refers to 24-bit word length. DTS 96/24 offers sound quality transparent to the original 96/24 master, and 96/24 5.1-channel sound with full-quality full-motion video for music programs and motion picture soundtracks on DVD video.

DTS Digital Surround

DTS Digital Surround was developed to replace the analog soundtracks of movies with a 5.1-channel digital sound track, and is now rapidly gaining popularity in movie theaters around the world. DTS, Inc. has developed a home theater system so that you can enjoy the depth of sound and natural spatial representation of DTS Digital Surround in your home. This system produces practically distortion-free 5.1-channel sound (technically, left, right and center channels, 2 surround channels, plus an LFE 0.1 channel as a subwoofer, for a total of 5.1-channels). This unit incorporates a DTS-ES decoder that enables 6.1-channel reproduction by adding the surround back channel to the existing 5.1-channel format.

DTS Express

This is an audio format for next-generation optical discs such as BD (Blu-ray disc). It uses optimized low bit rate signals for network streaming. In the case of a BD, this format is used with secondary audio, enabling you to enjoy the commentary of the movie producer via the Internet while playing the main program.

DTS-HD High Resolution Audio

DTS-HD High Resolution Audio is a high resolution audio technology developed for high-definition disc-based media including BD (Blu-ray disc). Selected as an optional audio standard for BD, this technology delivers sound that is virtually indistinguishable from the original, offering a high-definition home theater experience. Supporting bitrates up to 6.0 Mbps for BD, DTS-HD High Resolution Audio can carry up to 7.1 discrete channels of 24-bit/96 kHz audio simultaneously. DTS-HD High Resolution Audio also remains fully compatible with the existing multichannel audio systems that incorporate DTS Digital Surround.

DTS-HD Master Audio

DTS-HD Master Audio is an advanced lossless audio technology developed for high-definition disc-based media including BD (Blu-ray disc). Selected as an optional audio standard for BD, this technology delivers sound that is bit-for-bit identical to the studio master, offering a high-definition home theater experience. Supporting bitrates up to 24.5 Mbps for BD, DTS-HD Master Audio can carry up to 7.1 discrete channels of 24-bit/96 kHz audio simultaneously. Supported by HDMI version 1.3 and designed for the optical disc players and AV receivers/ amplifiers of the future, DTS-HD Master Audio also remains fully compatible with the existing multichannel audio systems that incorporate DTS Digital Surround.

DSD

Direct Stream Digital (DSD) technology stores audio signals on digital storage media, such as Super Audio CDs. Using DSD, signals are stored as single bit values at a high-frequency sampling rate of 2.8224 MHz, while noise shaping and oversampling are used to reduce distortion, a common occurrence with very high quantization of audio signals. Due to the high sampling rate, better audio quality can be achieved than that offered by the PCM format used for normal audio CDs. The frequency is equal to or higher than 100 kHz, with a dynamic range of 120 dB. This unit can transmit or receive DSD signals via the HDMI jack.

FLAC

This is a file format for lossless audio data compression. FLAC is inferior to lossy compression formats in compression rate but provides higher audio quality.

LFE 0.1 channel

This channel reproduces low-frequency bass signals, and has a frequency range from 20 Hz to 120 Hz. This channel is counted as 0.1, because it only enforces a low-frequency range compared to the full-range reproduced by the other 5-channels in Dolby Digital or DTS 5.1-channel systems.

MP3

One of the audio compression methods used by MPEG. It employs the irreversible compression method, which achieves a high compression rate by thinning out the data of hardly audible part to the human ears. It is said to be capable of compressing the data quantity by about 1/11 (128 kbps) while maintaining a similar audio quality to music CD.

MPEG-4 AAC

An MPEG-4 audio standard. As it allows compression of data at a bit rate lower than that of MPEG-2 AAC, it is used among others for mobile telephones, portable audio players and other low-capacity devices requiring high sound quality. In addition to the above types of devices, MPEG-4 AAC is also used to distribute contents on the Internet, and as such is supported by computers, media servers and many other devices.

Neo:6

Neo:6 decodes the conventional 2-channel sources for 6-channel playback by the specific decoder. It enables playback with the full-range channels with higher separation just like digital discrete signal playback. There are two modes available: "Music mode" for music sources and "Cinema mode" for movie sources.

PCM (Linear PCM)

Linear PCM is a signal format under which an analog audio signal is digitized, recorded and transmitted without using any compression. This is used as a method of recording CDs and DVD audio. The PCM system uses a technique for sampling the size of the analog signal per very small unit of time. Standing for "Pulse Code Modulation," the analog signal is encoded as pulses and then modulated for recording.

Sampling frequency and number of quantized bits

When digitizing an analog audio signal, the number of times the signal is sampled per second is called the sampling frequency, while the degree of accuracy when converting the sound level into a numeric value is called the number of quantized bits. The range of rates that can be played back is determined based on the sampling rate, whereas the dynamic range representing the sound level difference is determined by the number of quantized bits. In principle, the higher the sampling frequency, the wider the range of frequencies that can be played back, and the higher the number of quantized bits, the more accurately the sound level can be reproduced.

SILENT CINEMA

Yamaha has developed a natural, realistic sound effect DSP algorithm for headphones. Parameters for headphones have been set for each sound program, so that accurate representations of all the sound programs can be enjoyed on headphones.

Virtual CINEMA DSP

Yamaha has developed a Virtual CINEMA DSP algorithm that allows you to enjoy DSP surround effects even without any surround speakers, by using virtual surround speakers. It is even possible to enjoy Virtual CINEMA DSP using a minimal two-speaker system that does not include a center speaker.

WAV

Windows standard audio file format, which defines the method of recording the digital data obtained by converting audio signals. It does not specify the compression (coding) method so a desired compression method can be used with it. By default, it is compatible with the PCM method (no compression) and some compression methods including the ADPCM method.

WMA

An audio compression method developed by Microsoft Corporation. It employs the irreversible compression method, which achieves a high compression rate by thinning out the data of hardly audible part to the human ears. It is said to be capable of compressing the data quantity by about 1/22 (64 kbps) while maintaining a similar audio quality to music CD.

Video information

Component video signal

With the component video signal system, the video signal is separated into the Y signal for luminance and the Pb and Pr signals for chrominance. Color can be reproduced more faithfully with this system because each of these signals is independent. The component signal is also called the "color difference signal" because the luminance signal is subtracted from the color signal. A monitor with component input jacks is required in order to output component signals.

Composite video signal

With the composite video signal system, the video signal comprises the three basic elements of a video picture: color, brightness and synchronization data. A composite video jack on a video component transmits these three elements combined.

Deep Color

Deep Color refers to the use of various color depths in displays, up from the 24-bit depths in previous versions of the HDMI specification. This extra bit depth allows HDTVs and other displays increase from millions of colors to billions of colors and eliminate on-screen color banding for smooth tonal transitions and subtle gradations between colors. The increased contrast ratio can represent many times more shades of gray between black and white. Additionally, Deep Color increases the number of available colors within the boundaries defined by the RGB or YCbCr color space.

HDMI

HDMI (High-Definition Multimedia Interface) is the first industry supported, uncompressed, all-digital audio/video interface. Providing an interface between any sources (such as set-top boxes or AV receivers) and audio/video monitors (such as digital televisions), HDMI supports standard, enhanced or high-definition video as well as multichannel digital audio using a single cable. HDMI transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements.

When used in combination with HDCP (High-bandwidth Digital Content Protection), HDMI provides a secure audio/video interface that meets the security requirements of content providers and system operators. For further information on HDMI, visit the HDMI website at "<http://www.hdmi.org/>."

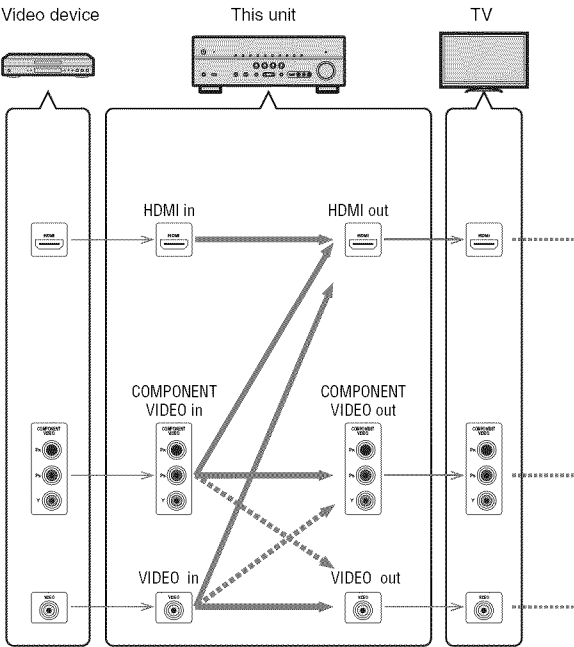
"x.v.Color"

A color space standard supported by HDMI version 1.3. It is a more extensive color space than sRGB, and allows the expression of colors that were not hitherto possible. While remaining compatible with the color gamut of sRGB standards, "x.v.Color" expands the color space, and can thus produce more vivid, natural images. It is particularly effective for still pictures and computer graphics.

Video signal flow

Video signals input from a video device to this unit are output to a TV as shown below.

→ (solid line) is always available.→ (dotted line) is available only when "Analog to Analog Conversion" (p.94) in the "Setup" menu is set to "On" (default).



Video conversion table



- You can select a resolution and an aspect ratio applied to HDMI-output video processing.
- This unit does not convert 480-line and 576-line video signals interchangeably.

		HDMI out					COMPONENT VIDEO out					VIDEO out
		480i/576i	480p/576p	720p	1080i	1080p	480i/576i	480p/576p	720p	1080i	1080p	480i/576i
HDMI in	480i/576i	→	→	→	→	→						
	480p/576p		→	→	→	→						
	720p			→								
	1080i				→							
	1080p					→						
COMPONENT VIDEO in	480i/576i	→	→	→	→	→	→				→
	480p/576p		→	→	→	→	→				
	720p			→				→			
	1080i				→				→		
VIDEO in	480i/576i	→	→	→	→	→→					→

Information on HDMI

HDMI Control

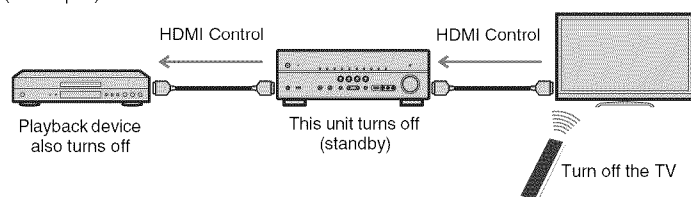
HDMI Control allows you to operate external devices via HDMI. If you connect a TV that supports HDMI Control to this unit with an HDMI cable, you can control this unit (power, volume, etc.) in conjunction with TV remote control operations. You can also control playback devices (HDMI Control-compatible BD/DVD players, etc.) connected to this unit with an HDMI cable.

For details on connections, see “Connecting a TV” (p.21) and “Connecting video devices (BD/DVD players, etc.)” (p.26).

Operations available from the TV's remote control

- Standby synchronization
- Volume control including mute
- Switching to input audio from the TV when the TV input is switched to its built-in tuner
- Switching to input video/audio from the selected playback device
- Switching between audio output devices (this unit or TV speaker)

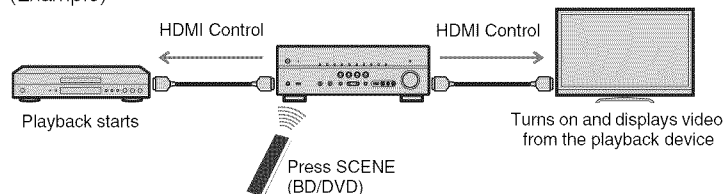
(Example)



Operations available from this unit's remote control

- Starting playback on the playback device and turning on the TV in conjunction with a scene selection (p.39)
- Switching the TV input to display the on-screen menu (when ON SCREEN is pressed)
- Controlling the playback device (playback and menu operations) without registering remote control codes (p.104)

(Example)



To use HDMI Control, you need to perform the following HDMI Control link setup after connecting the TV and playback devices.



- This setup is required every time when you add a new HDMI Control-compatible device to your system.

- 1 Turn on this unit, TV and playback devices.
- 2 Enable HDMI Control on this unit, TV and playback devices (HDMI Control-compatible BD/DVD players, etc.).

To enable HDMI Control on this unit, set “HDMI Control” (p.95) in the “Setup” menu to “On” and configure the related items (“TV Audio Input”, “ARC” and “Standby Sync”).

- 3 Turn off the main power of the TV and then turn off this unit and playback devices.
- 4 Turn on the main power of the TV and then turn on this unit and playback devices.

- 5 Switch the TV input to display the video from this unit.

- 6 Turn on the playback device and check the followings.

On this unit: The input to which the playback device is connected is selected. If not, select the input source manually.

On the TV: The video from the playback device is displayed.

- 7 Check that this unit is properly synchronized with the TV by turning off the TV or adjusting the TV volume with the TV remote control.



- If HDMI Control does not work properly, try unplugging the TV in step 2 and re-plugging the TV in step 3. It may solve the problem. Also, HDMI Control may not work if the number of connected devices is over the limit. In this case, disable HDMI Control on the devices not in use.
- If the unit is not synchronized to the TV's power operations, check the priority of the audio output setting on the TV.
- We recommend using TV and playback devices from the same manufacturer so that HDMI Control works more effectively.

HDMI signal compatibility

Audio signals

Audio signal type	Audio signal format	Compatible media (example)
2ch Linear PCM	2ch, 32 to 192 kHz, 16/20/24 bit	CD, DVD-Video, DVD-Audio
Multi-channel Linear PCM	8ch, 32 to 192 kHz, 16/20/24 bit	DVD-Audio, BD (Blu-ray disc), HD DVD
DSD	2/5.1ch, 2.8224 MHz, 1 bit	SACD
Bitstream	Dolby Digital, DTS	DVD-Video
Bitstream (High definition audio)	Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio, DTS-HD High Resolution Audio, DTS Express	BD (Blu-ray disc), HD DVD

Video signals

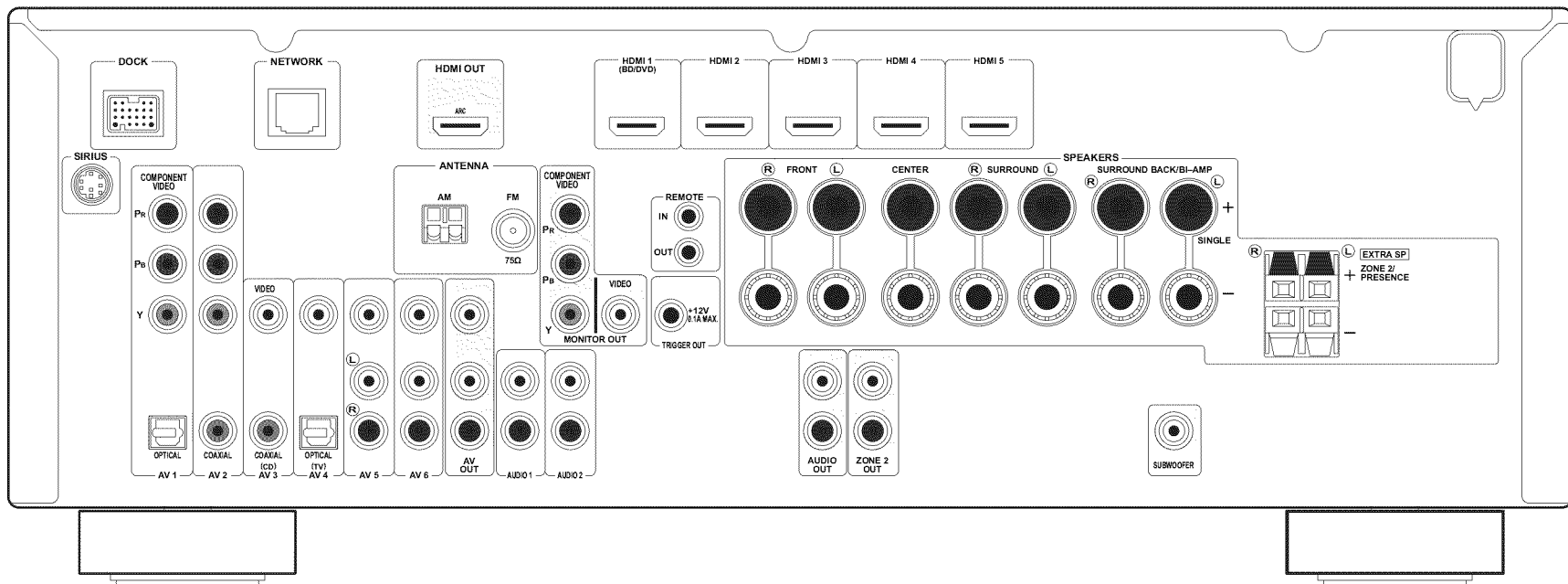
This unit is compatible with the video signals of the following resolutions:

- 480i/60 Hz
- 576i/50 Hz
- 480p/60 Hz
- 576p/50 Hz
- 720p/60 Hz, 50 Hz
- 1080i/60 Hz, 50 Hz
- 1080p/60 Hz, 50 Hz, 24 Hz



- When CPPM copy-protected DVD-Audio is played back, video/audio signals may not be output, depending on the type of the DVD player.
- This unit is not compatible with HDCP-incompatible HDMI or DVI devices. For details, refer to the instruction manual of each device.
- To decode audio bitstream signals on this unit, set the input source device appropriately so that the device outputs the bitstream audio signals directly (does not decode the bitstream signals on the playback device). For details, refer to the instruction manual of the playback device.
- This unit is not compatible with the audio commentary features (for example, the special audio contents downloaded via Internet) of BD or HD DVD. This unit does not playback the audio commentaries of the BD or HD DVD content.

Reference diagram (rear panel)



Trademarks



Manufactured under license from Dolby Laboratories. Dolby, Pro Logic and the double-D symbol are trademarks of Dolby Laboratories.



Manufactured under license under U.S. Patent #'s:

5,451,942; 5,956,674; 5,974,380; 5,978,762; 6,226,616; 6,487,535; 7,212,872; 7,333,929; 7,392,195; 7,272,567 & other U.S. and worldwide patents issued & pending. DTS and the Symbol are registered trademarks, & DTS-HD, DTS-HD Master Audio, and the DTS logos are trademarks of DTS, Inc.

Product includes software. © DTS, Inc. All Rights Reserved.

iPod™, iPhone™

"Made for iPod" and "Made for iPhone" mean that an electronic accessory has been designed to connect specifically to iPod or iPhone, respectively, and has been certified by the developer to meet Apple performance standards.

Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod or iPhone may affect wireless performance.

"iPod" is a trademark of Apple Inc., registered in the U.S. and other countries. "iPhone" is a trademark of Apple Inc.



Fraunhofer Institut
Integrierte Schaltungen

MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson.



This receiver supports network connections.

Bluetooth™

Bluetooth is a registered trademark of the Bluetooth SIG and is used by Yamaha in accordance with a license agreement.



"HDMI," the "HDMI" logo and "High-Definition Multimedia Interface" are trademarks, or registered trademarks of HDMI Licensing LLC.

x.v.Color™

"x.v.Color" is a trademark of Sony Corporation.

SILENT™ CINEMA

"SILENT CINEMA" is a trademark of Yamaha Corporation.



SIRIUS, XM and all related marks and logos are trademarks of Sirius XM Radio Inc. and its subsidiaries. All rights reserved. Service not available in Alaska and Hawaii.



DLNA Certified is a trademark of the Digital Living Network Alliance in the United States and other countries.



Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Windows XP, Windows Vista, Windows 7, Windows Media Audio, Windows Media Connect and Windows Media Player are either registered trademarks or trademarks of Microsoft corporation in the United States and/or other countries.

Specifications

Input jacks

- Analog Audio
 - [U.S.A. and Canada models]
Audio x 5 (AV5~6, AUDIO1~2, V-AUX)
[Other models]
Audio x 6 (AV5~6, AUDIO1~2, PHONO, V-AUX)
- Digital Audio (Support fs: 32 kHz to 96 kHz)
 - Optical x 2 (AV1, AV4)
Coaxial x 2 (AV2, AV3)
- Video
 - Composite x 5 (AV3~6, V-AUX)
S-Video x 1 (AV5) [U.K. and Europe models]
Component x 2 (AV1~2)
- HDMI Input
 - HDMI (Front Panel) x 1 (V-AUX)
HDMI (Rear Panel) x 5 (HDMI1~5)
- Other
 - DOCK x 1 (Audio, Composite Video)
USB x 1 (USB2.0)
NETWORK x 1 (100Base-TX)

Output jacks

- Analog Audio
 - Speaker out x 9 (7 ch) (FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R*¹, EXTRA SP L/R*²)
*¹ Note: assignment is possible. [SURROUND BACK, BI-AMP (FRONT L/R)]
*² Note: assignment is possible. [ZONE2, PRESENCE]
Subwoofer out x 1
AV OUT x 1
AUDIO OUT x 1
ZONE2 OUT x 1
- Video
 - MONITOR OUT
 - Component x 1

- Composite x 1
AV OUT
- Composite x 1

- HDMI Output
 - HDMI OUT x 1

Remote jacks

- REMOTE IN x 1
- REMOTE OUT x 1
- TRIGGER OUT x 1

HDMI

- HDMI Specification: Deep Color, "x.v.Color," Auto Lip Sync, HDMI Control (CEC), ARC (Audio Return Channel), 3D
- Video Format (Repeater Mode)
 - VGA
 - 480i/60 Hz
 - 576i/50 Hz
 - 480p/60 Hz
 - 576p/50 Hz
 - 720p/60 Hz, 50 Hz
 - 1080i/60 Hz, 50 Hz
 - 1080p/60 Hz, 50 Hz, 24 Hz
- Audio Format
 - Dolby Digital
 - DTS
 - DSD 6ch
 - Dolby Digital Plus
 - Dolby TrueHD
 - DTS-HD
 - PCM 2ch-8ch (Max 192 kHz/24 bit)
- Content Protection: HDCP compatible

TUNER

- Analog Tuner
 - [U.K. and Europe models]
FM/AM with RDS x 1 (TUNER)
[Other models]
FM/AM x 1 (TUNER)
- Satellite Radio Ready [U.S.A. model]
SIRIUS Radio x 1 (SIRIUS)

USB

- Capable of iPod, Mass Storage Class USB Memory, MTP (Media Transfer Protocol)
- Current Supply Capacity: 1 A

Network

- PC Client Function
- Compatible with Windows 7, DLNA ver. 1.5
- Internet Radio

Compatible Decoding Formats

- Decoding Format
 - Dolby TrueHD, Dolby Digital Plus
 - DTS-HD Master Audio, DTS-HD High Resolution, DTS Express
 - Dolby Digital, Dolby Digital EX
 - DTS, DTS 96/24, DTS-ES Matrix 6.1, DTS-ES Discrete 6.1
- Post Decoding Format
 - Dolby Pro Logic
 - Dolby Pro Logic II Music, Dolby Pro Logic II Movie,
 - Dolby Pro Logic II Game
 - Dolby Pro Logic IIx Music, Dolby Pro Logic IIx Movie,
 - Dolby Pro Logic IIx Game
 - DTS Neo:6 Music, DTS Neo:6 Cinema

Audio Section

- **Rated Output Power**
(20 Hz to 20 kHz, 0.09% THD, 8Ω)
Front L/R90 W+90 W
(1 kHz, 0.9% THD, 8Ω)
Front L/R 125 W/ch (105 W+105 W)
Center 125 W/ch (105 W)
Surround L/R..... 125 W/ch (105 W+105 W)
Surround Back L/R 125 W/ch (105 W+105 W)
- **Maximum Effective Output Power (JEITA, 1 kHz, 10% THD, 8 Ω)**
[China, Asia and General models]
Front L/R 150 W/ch
Center 150 W/ch
Surround L/R..... 150 W/ch
Surround Back L/R 150 W/ch
- **Dynamic Power (IHF)**
Front L/R (8/6/4/2 Ω) 130/170/200/240 W
- **Damping Factor**
Front L/R, 20 Hz to 20 kHz, 8 Ω 100 or more
- **Input Sensitivity / Input Impedance**
[U.S.A. and Canada models]
AV5 etc. (1 kHz, 100 W/8 Ω)200 mV/47 kΩ
[Other models]
PHONO (1 kHz, 100 W/8 Ω)3.5 mV/47 kΩ
AV5 etc. (1 kHz, 100 W/8 Ω)200 mV/47 kΩ
- **Maximum Input Signal**
[U.S.A. and Canada models]
AV5 etc. (1 kHz, 0.5% THD, Effect On) 2.3 V
[Other models]
PHONO (1 kHz, 0.1% THD) 60 mV
AV5 etc. (1 kHz, 0.5% THD, Effect On) 2.3 V
- **Output Level / Output Impedance**
REC OUT200 mV/1.2 kΩ
SUBWOOFER (2ch Stereo, Front: Small) 1 V/1.2 kΩ
ZONE2 OUT200 mV/1.2 kΩ
- **Headphone Jack Rated Output / Impedance**
AV5 etc. (1 kHz, 50 mV, 8 Ω)100 mV/560 Ω

- **Frequency Response**
AV5 etc. to Front (10 kHz to 100 kHz)+0/-3 dB
- **RIAA Equalization Deviation**
[China, Australia, U.K. and Europe, Asia and General models]
PHONO 0±0.5 dB
- **Total Harmonic Distortion**
[U.S.A. and Canada models]
AV5 etc. to Front (Pure Direct)
(20 to 20 kHz, 50 W/8 Ω) 0.06% or less
[Other models]
PHONO to REC OUT (20 to 20 kHz, 1 V) 0.02% or less
AV5 etc. to Front (Pure Direct)
(20 to 20 kHz, 50 W/8 Ω) 0.06% or less
- **Signal to Noise Ratio (IHF-A Network)**
[U.S.A. and Canada models]
AV5 etc.
(Pure Direct, Input Shorted 250 mV, SP OUT) 100 dB or more
[Other models]
PHONO (Input Shorted 5 mV, REC OUT)81 dB or more
AV5 etc.
(Pure Direct, Input Shorted 250 mV, SP OUT) 100 dB or more
- **Residual Noise (IHF-A Network)**
Front L/R (SP OUT) 150 μV or less
- **Channel Separation**
[U.S.A. and Canada models]
AV5 etc.
(Input 5.1 kΩ Shorted, 1 kHz/10 kHz) 60 dB/45 dB or more
[Other models]
PHONO (Input Shorted, 1 kHz/10 kHz) ... 60 dB/55 dB or more
AV5 etc.
(Input 5.1 kΩ Shorted, 1 kHz/10 kHz) 60 dB/45 dB or more
- **Volume Control**
Range MUTE, -80 dB to +16.5 dB
Step 0.5 dB
- **Tone Control Characteristics (Front L/R)**
Bass Boost/Cut ±6 dB/0.5 dB Step at 50 Hz
Bass Turnover 350 Hz
Treble Boost/Cut ±6 dB/0.5 dB Step at 20 kHz

Treble Turnover3.5 kHz

- **Filter Characteristics**
(fc=40/60/80/90/100/110/120/160/200 Hz)
H.P.F. (Front, Center, Surround, Surround Back)12 dB/oct.
L.P.F. (Subwoofer)24 dB/oct.

Video Section

- **Video Signal Type**
[U.S.A., Canada and General models]NTSC
[Other models] PAL
- **Video Signal Type (Video Conversion)** NTSC/PAL
- **Video Signal Level**
Composite 1 Vp-p/75 Ω
S-Video [U.K. and Europe models]
Y 1 Vp-p/75 Ω
C 0.286 Vp-p/75 Ω
Component
Y 1 Vp-p/75 Ω
- **Video Maximum Input Level (Video Conversion Off)**
..... 1.5 Vp-p or more
- **Video Signal to Noise Ratio** 50 dB or more
- **Monitor Out Frequency Response (Video Conversion Off)**
Component5 Hz to 60 MHz, -3 dB

FM Section

- Tuning Range
[U.S.A. and Canada models]87.5 MHz to 107.9 MHz
[Asia and General models]87.5/87.50 MHz to 108.0/108.00 MHz
[Other models].....87.50 MHz to 108.00 MHz
- 50 dB Quiet Sensitivity (IHF, 1 kHz, 100% MOD.)
Mono 3 μ V (20.8 dBf)
- Signal to Noise Ratio (IHF)
Mono.....71 dB
Stereo69 dB
- Harmonic Distortion (IHF, 1 kHz)
Mono..... 0.3%
Stereo 0.5%
- Antenna Input75 Ω unbalanced

AM section

- Tuning Range
[U.S.A. and Canada models] 530 kHz to 1710 kHz
[Asia and General models]..... 530/531 kHz to 1710/1611 kHz
[Other models]..... 531 kHz to 1611 kHz

General

- Power Supply
[U.S.A. and Canada models] AC 120 V, 60 Hz
[General model].....AC 110-120/220-240 V, 50/60 Hz
[China model] AC 220 V, 50 Hz
[Australia model] AC 240 V, 50 Hz
[U.K. and Europe models]..... AC 230 V, 50 Hz
[Asia model] AC 220-240 V, 50/60 Hz
- Power Consumption
[U.S.A. and Canada models]400 W/500 VA
[Asia and General models]..... 300 W
[Other models]..... 330 W
- Standby Power Consumption
HDMI Control Off / Standby Through Off.....0.1 W or less
HDMI Control On/Standby Through On (Typical)..... 2.0 W
Network Standby On (Typical)..... 2.0 W

- Maximum Power Consumption
[Asia and General models]590 W
- Dimensions (W x H x D) 435 x 161 x 363 mm
(17-1/8" x 6-3/8" x 14-1/4")
- Weight10.5 kg (23.2 lbs)

* Specifications are subject to change without notice.



YAMAHA CORPORATION

Using the Pandora service

The Pandora service is available in the U.S.A. only.

Pandora is a free, personalized Internet radio service playing only music you love. Enter your favorite artists or songs and Pandora will bring an effortless personal soundtrack into your living room. Rate songs as they play, because Pandora caters to your tastes and adapts stations to your feedback on the spot.

Since all Pandora accounts are portable, you can always access your own personalized Pandora stations from any computer or device in the United States that supports Pandora. Pandora is only available within the United States due to licensing restrictions.

Pandora is always free, with the option to upgrade to Pandora One which is completely free of all advertising and comes with additional features.

For more information, <http://www.pandora.com>



- To use this function, this unit must be connected to the Internet. For detail on connections and network settings, refer to "Owner's Manual".
- If any error message appears on the front display, see "Error indications on the front display" in "Owner's Manual".
- The actual display may be partly different from display images used on this document depending on the model.

Account setup for Pandora

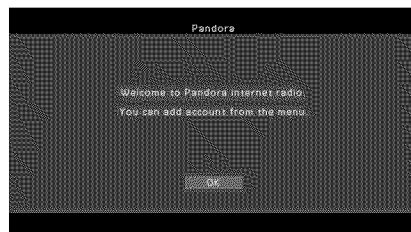
If you have not set up your Pandora account yet, the account setup screen appears when you select "Pandora". To start using the Pandora service on this unit, follow the procedure below to set up your Pandora account.



- You can register up to eight Pandora accounts on this unit. For details, see "Editing the Pandora accounts" (p.4).

1 Press NET repeatedly to select "Pandora" as the input source.

The following screen is displayed on the TV if you have not set up your Pandora account on this unit yet.

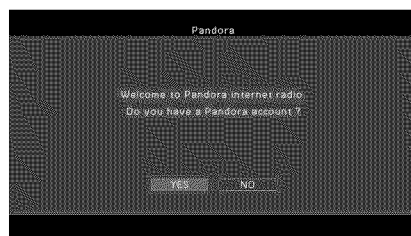


2 Press ENTER.

3 Use the cursor keys (Δ/▽) to select "Add Account" and press ENTER.

4 If you have a Pandora account, use the cursor keys to select "YES" and press ENTER.

If you do not have a Pandora account, use the cursor keys to select "NO" and press ENTER.



5 Perform the following procedure.

If you select "YES" in step 4

- ① Press ENTER to enter the email address entry screen.
- ② Use the cursor keys and ENTER to enter your Pandora account email address and select "OK". To clear the entry, select "CLEAR"
- ③ Press ENTER to enter the password entry screen.
- ④ Use the cursor keys and ENTER to enter your Pandora password and select "OK". The following screen appears if you have successfully logged into your account.

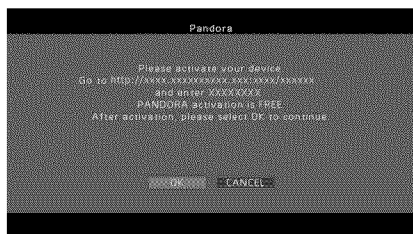


- If login failed, the error screen appears. In this case, read the on-screen message and start all over again.

- ⑤ Press ENTER.

If you select “NO” in step 4

- 1 Write down the URL and active code shown in the TV.



- 2 Use a web browser on your PC to access the URL and follow the on-screen instruction to register for a Pandora account.
- 3 After activation, press ENTER to log in with your new Pandora account.

Creating Pandora stations

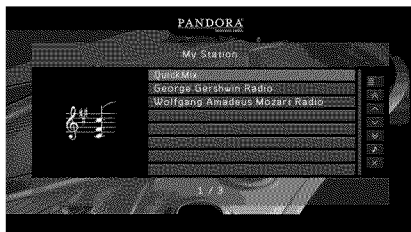
Pandora lets you create up to 100 custom radio stations that play only music you love. Just type in your favorite song or artist and Pandora will create a station that plays similar music.



- If there are no Pandora stations in your account, the “Create Station” screen appears automatically. In this case, proceed to step 4 and create Pandora stations.

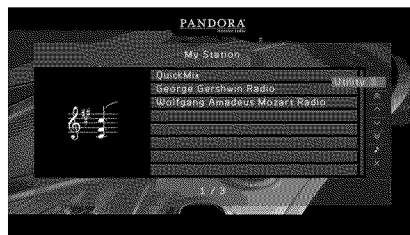
1 Press NET repeatedly to select “Pandora” as the input source.

The browse screen is displayed on the TV.



- If playback of any Pandora station is ongoing, the playback screen is displayed. Press RETURN to display the browse screen.

2 Use the cursor keys to select “Utility” and press ENTER.



3 Use the cursor keys to select “Create Station” and press ENTER.

4 Use the cursor keys and ENTER to enter the name of an artist or a song (all or part of the name) and select “Search”.

The auto-complete list will appear on the right side of the screen during the name entry. If you select an artist or a song from the list, it will be added to your Pandora stations. The playback of the selected station starts automatically and the playback screen is displayed.

To close the “Create Station” screen and return to the browse screen, press RETURN.



5 Perform the following procedure.

If both artists and songs are found

- 1 Use the cursor keys to select “ARTISTS” or “SONGS” and press ENTER.



- 2 Use the cursor keys to select a desired item and press ENTER.
The selected item is added to your Pandora stations. The playback starts automatically and the playback screen is displayed.

If either artists or songs are found

Use the cursor keys to select a desired item and press ENTER.

The selected item is added to your Pandora stations. The playback starts automatically and the playback screen is displayed.

If only one item is found

In this case, the item found is automatically added to your Pandora stations. The playback starts automatically and the playback screen is displayed.

If no items are found

Press ENTER and repeat step 4 to try another keyword.



- To return to the browse screen, press RETURN.

Playback of Pandora stations

If you have created Pandora stations, follow the procedure below to select a Pandora station to be played.

1 Press NET repeatedly to select “Pandora” as the input source.

The browse screen (My Station list) is displayed on the TV.



- If playback of any Pandora station is ongoing, the playback screen is displayed.
- If you have not signed in, the account list screen is displayed. Use the cursor keys to select your Pandora account and press ENTER.

2 Use the cursor keys to select a Pandora station and press ENTER.

Playback of the selected station starts and the playback screen is displayed.



- You can register your favorite Pandora station as shortcuts and access them directly by selecting the shortcut numbers. For details, see “Registering favorite items (shortcut)” in “Owner’s Manual”.

Browse screen



1 Playback indicators (play/pause)

2 My Station list

Displays the list of Pandora stations. Use the cursor keys to select a Pandora station and press ENTER to start playback. A speaker icon indicates the station currently played back.

3 Station art

4 Item number/total

5 Feedback indicator

Displays your feedback (thumb up/down) for the current song. You can give feedback for the song in the playback screen.

6 Operation menu

Use the cursor keys to select an item and press ENTER to confirm the selection. To close the submenu, press RETURN.

Menu	Submenu	Function
Utility	Create Station	Creates a new Pandora station. For details, see “Creating Pandora stations” (p.2)
	Delete Station	Delete the Pandora station selected in the list.
1 Page Up		Moves to the previous/next page of the list.
1 Page Down		
10 Pages Up		Moves to 10 pages forward/backward.
10 Pages Down		
Now Playing		Moves to the playback screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.



- Submenus available in “Utility” vary depending on the selected item.

Playback screen



1 Playback indicators (play/pause)

2 Playback information

Displays the station name, album name, song title and elapsed/total time. Use the cursor keys to select information to be scrolled.

3 Album image





4 Feedback indicator

Displays your feedback (thumb up/down) for the current song.





5 Operation menu

Use the cursor keys to select an item and press ENTER to confirm the selection.

To close the submenu, press RETURN.

Menu	Submenu	Function
I like this song		Gives positive feedback (thumb up) for the current song.
I don't like this song		Gives negative feedback (thumb down) for the current song and skip to the next song.
Utility	Bookmark this song	Adds the current song to your bookmarks on your Pandora profile page at "http://www.pandora.com".
	Bookmark this artist	Adds the current artist to your bookmarks on your Pandora profile page at "http://www.pandora.com".
	Tired of this song	Requests not to play back the current song for a month and skip to the next song.
	Why this song?	Display the information why this song is selected.
Play Control		Resumes playback from pause.
		Stops playback.
		Stops playback temporarily.
		Skips forward.
Browse		Moves to the browse screen (My Station list).
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.



- You can also use the external device operation keys (, , , ) on the remote control to control playback.
- Some functions are not available during advertisement broadcast.

Switching information on the front display

1 Press INFO.

Each time you press the key, the display item switches.

Display items

Song (song title), Station (station name), Album (album name), DSP Program (sound mode name), Audio Decoder (decoder name)

Editing the Pandora accounts

You can register up to 8 Pandora accounts on this unit. Follow the procedure below to add or remove Pandora accounts, or switch to another Pandora account.

- Press ON SCREEN.
- Use the cursor keys to select "Input" and press ENTER.
- Use the cursor keys (</>) to select "Pandora" and press the cursor key (Δ).
- Perform the following procedure.

To add a new Pandora account

- Use the cursor keys (Δ/▽) to select "Add Account" and press ENTER.
- Follow from step 4 of "Account setup for Pandora" (p.1).

To remove a Pandora account

- Use the cursor keys (Δ/▽) to select "Remove Account" and press ENTER.
- Use the cursor keys to select a Pandora account to be removed and press ENTER.
- Use the cursor keys to select "OK" and press ENTER.

To switch to another Pandora account

- Use the cursor keys (Δ/▽) to select "Switch User" and press ENTER.
- Use the cursor keys to select a Pandora account to be used and press ENTER.
The browse screen (My Station list) for the selected Pandora account is displayed.

Pandora and Pandora Internet Radio logo are registered trademarks or trademarks of Pandora Media, Inc. in the United States and/or other countries.

Using the Napster service

The Napster service is available in the U.S.A., Canada, Germany and the U.K. only. In other countries, Napster cannot be accessed from any device including this unit.

Napster is the ultimate music service for your Yamaha, offering unlimited on-demand streaming from a huge catalogue with new music added every day. With millions of songs at your fingertips, choose from the latest releases, charts and every possible genre. Discover new music and rediscover old favorites with playlists, radio stations and more. Play your Napster music wherever you are- on your Yamaha, your computer or other devices supported by Napster in the U.S.A., Canada, Germany and the U.K. Try unlimited music now with a free 14-day trial of Napster!

For more information, visit the website for each country.

- U.S.A.: www.napster.com
- Canada: www.napster.ca
- Germany: www.napster.de
- U.K.: www.napster.co.uk



- To use this function, this unit must be connected to the Internet. For detail on connections and network settings, refer to "Owner's Manual".
- If any error message appears on the front display, see "Error indications on the front display" in "Owner's Manual".
- The actual display may be partly different from display images used on this document depending on the model.

Napster account sign-in

If you have not signed in to your Napster account yet, the sign-in screen appears when you select "Napster". To start using the Napster service on this unit, follow the procedure below to sign in to your Napster account.

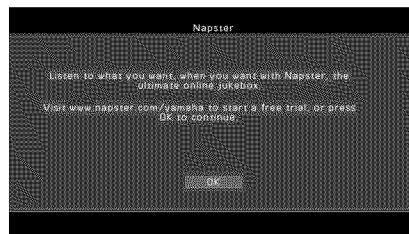


- If you want to sign in to your Napster account after free trial expired, select "Sign In" from the "Input" menu and then follow from step 4 of this procedure. For details on the "Input" menu, see "Configuring input sources (Input menu)" in "Owner's Manual".

1 Press NET repeatedly to select "Napster" as the input source.

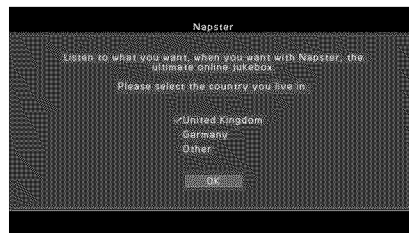
The following screen is displayed on the TV if you have not signed in to your Napster account yet.

(U.S.A. and Canada models)



(U.K. and Europe models)

Use the cursor keys to select your country and press ENTER.



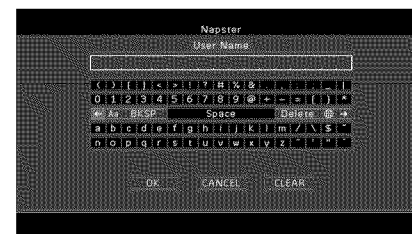
2 Read the on-screen description and press ENTER.

3 Use the cursor keys (Δ/▽) to select "Sign In" and press ENTER.

To get started with a 14-day free trial, select "Start Free Trial" and register for a trial account in the specified website.

4 Press ENTER to enter the user name entry screen.

5 Use the cursor keys and ENTER to enter your user name and select "OK".

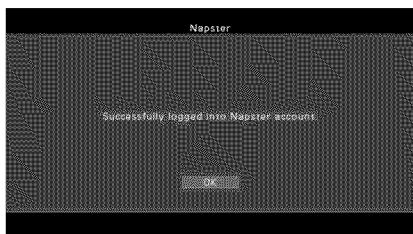


- To clear the entry, select "CLEAR".

6 Press ENTER to enter the password entry screen.

7 Use the cursor keys and ENTER to enter your password and select “OK”.

The following screen appears if you have successfully logged into your account.



- If sign-in failed, the error screen appears. In this case, read the on-screen message and start all over again.

8 Press ENTER.

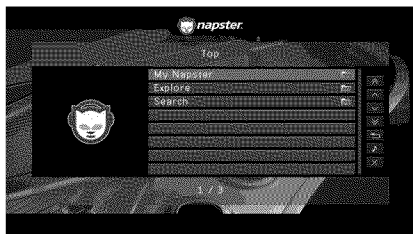
The browse screen is displayed on the TV.

Playback of Napster contents

Follow the procedure below to operate the Napster contents and start playback.

1 Press NET repeatedly to select “Napster” as the input source.

The browse screen is displayed on the TV.



My Napster	Select a song from the playlists you have created online.
Explore	Select a song or a Napster radio station from the lists organized by category (artist, album, etc.).
Search	Use the software keyboard to search the desired item (artist, album, etc.) by keyword.



- If playback of any Napster content is ongoing, the playback screen is displayed.

2 Use the cursor keys to select an item and press ENTER.

If a song or a radio station is selected, playback starts and the playback screen is displayed.



- To return to the previous screen, press RETURN.
- You can register your favorite items as shortcuts and access them directly by selecting the shortcut numbers. For details, see “Registering favorite items (shortcut)” in “Owner’s Manual”.

Browse screen



1 Status indicators

Display the current shuffle/repeat settings and playback status.

2 List name

3 Contents list

Displays the list of Napster contents. Use the cursor keys to select an item and press ENTER to confirm the selection.

4 Album image

5 Item number/total

6 Operation menu

Use the cursor keys to select an item and press ENTER to confirm the selection.

Menu	Function
1 Page Up	Moves to the previous/next page of the list.
1 Page Down	
10 Pages Up	Moves to 10 pages forward/backward.
10 Pages Down	
Return	Returns to the higher-level list.
Now Playing	Moves to the playback screen.
Screen Off	Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

■ Playback screen



1 Status indicators

Display the current shuffle/repeat settings and playback status.

2 Playback information

Displays the artist name, album name, song title and elapsed/total time.
Use the cursor keys to select information to be scrolled.

3 Album image

4 Operation menu

Use the cursor keys to select an item and press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Play Control		Stops playback.
		Skips forward/backward.
Browse		Moves to the browse screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.



- You can also use the external device operation keys (▶, ■, ◀, ▶) on the remote control to control playback.

■ Shuffle/repeat settings

You can configure the shuffle/repeat settings for playback of Napster contents.



- The shuffle/repeat settings are shared by USB and network sources.

1 When “Napster” is selected as the input source, press **OPTION**.

2 Use the cursor keys to select “Shuffle” (Shuffle) or “Repeat” (Repeat) and press **ENTER**.



- To return to the previous screen during menu operations, press **RETURN**.
- Texts in parentheses denote indications on the front display.

3 Use the cursor keys (◀/▶) to select a setting and press **ENTER**.

Item	Setting	Function
Shuffle (Shuffle)	Off (Off)	Turns off the shuffle function.
	On (On)	Plays back songs in the current album in random order. “” appears in the TV screen.
Repeat (Repeat)	Off (Off)	Turns off the repeat function.
	Single (Single)	Plays back the current song repeatedly. “” appears in the TV screen.
	All (All)	Plays back all songs in the current album repeatedly. “” appears in the TV screen.

4 To exit from the menu, press **OPTION**.

■ Switching information on the front display

1 Press **INFO**.

Each time you press the key, the display item switches.

Display items

Song (song title), Artist (artist name), Album (album name), DSP Program (sound mode name), Audio Decoder (decoder name)

Removing the Napster account

Follow the procedure below to remove your Napster account from this unit.

1 Press **ON SCREEN**.

2 Use the cursor keys to select “Input” and press **ENTER**.

3 Use the cursor keys (◀/▶) to select “Napster” and press the cursor key (△).

4 Use the cursor keys (△/▽) to select “Remove Account” and press **ENTER**.

5 Use the cursor keys to select “OK” and press **ENTER**.

Your Napster account is removed from this unit.

6 To exit from the menu, press **ON SCREEN**.

Napster and the Napster logos are trademarks or registered trademarks of Napster, LLC.

Using the Rhapsody® service

The Rhapsody® service is available in the U.S.A. only.

Prohibition

- It is strictly prohibited to modify, reproduce, reverse-engineer or use this unit and/or built-in software for use other than audiovisual purposes.

The Rhapsody® service is the power behind the Rhapsody® Media Player (the Rhapsody® player software that you can download to your computer). Rhapsody® service supplies the music, keeps My Library up to date, provides you with Rhapsody® channels, the Playlist Central online community, and manages your downloads. Your software connects to Rhapsody® service through the internet. Because your account information and Rhapsody® content are on servers instead of any individual computer, your music is infinitely portable. Much of what you see in the Display area comes from Rhapsody® service. What you can do with Rhapsody® service depends on your subscription. You can use Rhapsody® service for free, or get even more from a paid membership. The Rhapsody® service also brings you Rhapsody® Online, a streamlined, internet version of Rhapsody® that you can access from almost anywhere. Just sign in to your Rhapsody® account to start letting the Rhapsody® service work for you.

For more information, <http://www.rhapsody.com/>



- To use this function, this unit must be connected to the Internet. For detail on connections and network settings, refer to "Owner's Manual".
- If any error message appears on the front display, see "Error indications on the front display" in "Owner's Manual".
- The actual display may be partly different from display images used on this document depending on the model.

Rhapsody® account sign-in

If you have not signed in to your Rhapsody account yet, the sign-in screen appears when you select "Rhapsody". To start using the Rhapsody service on this unit, follow the procedure below to sign in to your Rhapsody account.

1 Press NET repeatedly to select "Rhapsody" as the input source.

The following screen is displayed on the TV if you have not signed in to your Rhapsody account yet.



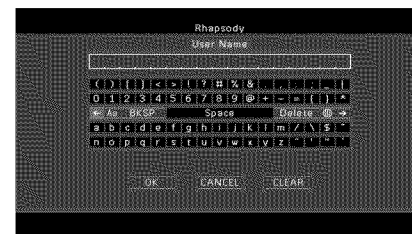
2 Read the description and press ENTER.

3 Use the cursor keys (Δ/▽) to select "Sign In" and press ENTER.

To get started with a 30-day free trial, select "Rhapsody Trial" and register for a trial account in the specified website.

4 Press ENTER to enter the user name entry screen.

5 Use the cursor keys and ENTER to enter your user name and select "OK".

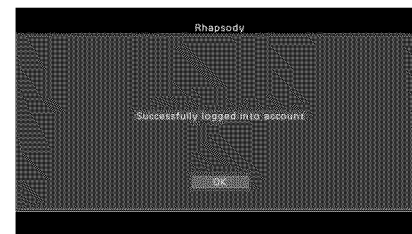


- To clear the entry, select "CLEAR".

6 Press ENTER to enter the password entry screen.

7 Use the cursor keys and ENTER to enter your password and select "OK".

The following screen appears if you have successfully logged into your account.



- If sign-in failed, the error screen appears. In this case, read the on-screen message and start all over again.

8 Press ENTER.

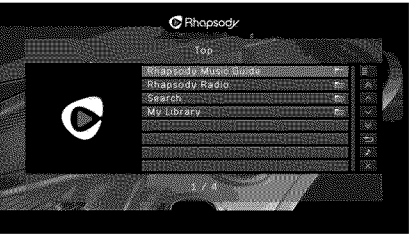
The browse screen is displayed on the TV.

Playback of Rhapsody® contents

Follow the procedure below to operate the Rhapsody contents and start playback.

1 Press NET repeatedly to select “Rhapsody” as the input source.

The browse screen is displayed on the TV.



Rhapsody Music Guide	Select a song from the lists organized by category (artist, album, etc).
Rhapsody Radio	Select a network radio channel from the lists of the channels provided by Rhapsody.
Search	Use the software keyboard to search the desired item (artist, album, etc.) by keyword.
My Library	Select a track from items (artist, album, etc.) added to “My Library”.



- If playback of any Rhapsody content is ongoing, the playback screen is displayed.

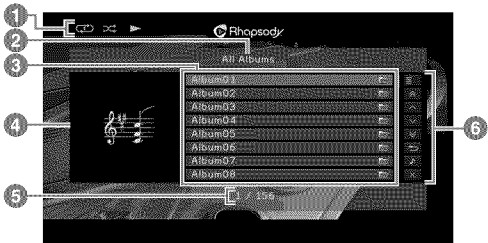
2 Use the cursor keys to select an item and press ENTER.

If a song or a radio channel is selected, playback starts and the playback screen is displayed.



- To return to the previous screen, press RETURN.
- You can register your favorite items as shortcuts and access them directly by selecting the shortcut numbers. For details, see “Registering favorite items (shortcut)” in “Owner’s Manual”.

■ Browse screen



- 1 Status indicators**
Display the current shuffle/repeat settings and playback status (play/pause).
- 2 List name**
- 3 Contents list**
Displays the list of Rhapsody contents. Use the cursor keys to select an item and press ENTER to confirm the selection.
- 4 Album image**

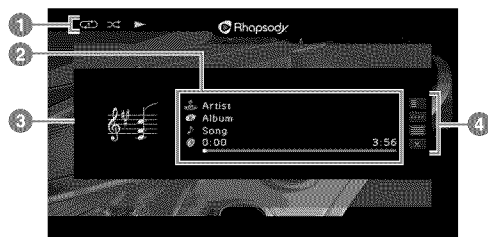
- 5 Item number/total**
- 6 Operation menu**
Use the cursor keys to select an item and press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
	Play	Starts playback of the selected song/album or radio channel.
	Add track to My Library	Adds the song selected in the list to “My Library”.
Utility	Add album to My Library	Adds the album selected in the list to “My Library”.
	Add CH to My Library	Adds the Rhapsody Radio channel selected in the list to “My Library”.
1 Page Up		Moves to the previous/next page of the list.
1 Page Down		
10 Pages Up		Moves to 10 pages forward/backward.
10 Pages Down		
Return		Returns to the higher-level list.
Now Playing		Moves to the playback screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.



- By adding your favorite Rhapsody contents to “My Library”, you can access to them quickly from “My Library”. To remove items from “My Library”, select the item in “My Library” and then “Remove from My Library” in “Utility”.
- Submenus available in “Utility” vary depending on the list.

■ Playback screen



① Status indicators

Display the current shuffle/repeat settings and playback status (play/pause).

② Playback information

Displays the artist name, album name, song title and elapsed/total time.
Use the cursor keys to select information to be scrolled.

③ Album image

④ Operation menu

Use the cursor keys to select an item and press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Utility	Add track to My Library	Adds the current song to "My Library".
	Add album to My Library	Adds the current album to "My Library".
Play Control	▶	Resumes playback from pause.
	■	Stops playback.
	■ ■	Stops playback temporarily.
	⏮ ⏭	Skips forward/backward.
Browse		Moves to the browse screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.



- You can also use the external device operation keys (▶, ■, ■ ■, ⏮, ⏭) on the remote control to control playback.
- Some playback controls are not available during Rhapsody radio channel playback.

■ Shuffle/repeat settings

You can configure the shuffle/repeat settings for playback of Rhapsody contents.



- The shuffle/repeat settings are shared by USB and network sources.

- When "Rhapsody" is selected as the input source, press OPTION.
- See "Playing back music stored on PCs" in "Owner's Manual" to configure the settings.

■ Switching information on the front display

1 Press INFO.

Each time you press the key, the display item switches.

Display items

Song (song title), Artist (artist name), Album (album name), DSP Program (sound mode name), Audio Decoder (decoder name)

Removing the Rhapsody account

Follow the procedure below to remove your Rhapsody account from this unit.

- Press ON SCREEN.
- Use the cursor keys to select "Input" and press ENTER.
- Use the cursor keys (◀/▶) to select "Rhapsody" and press the cursor key (Δ).
- Use the cursor keys (Δ/▽) to select "Remove Account" and press ENTER.
- Use the cursor keys to select "OK" and press ENTER.
Your Rhapsody account is removed from this unit.
- To exit from the menu, press ON SCREEN.

■ Checking the registration status of the Rhapsody account

To check the registration status of your Rhapsody account, follow "Removing the Rhapsody account" and select "Account Status" in step 4.



Rhapsody and the Rhapsody logo are registered trademarks of RealNetworks, Inc.

Listening to SIRIUS Internet Radio

The SIRIUS Internet Radio service is available in the U.S.A. only.
(Service not available in Alaska and Hawaii)

It's easy to enjoy SIRIUS entertainment at home. Listen to over 80 channels of commercial-free music, plus sports talk, news and entertainment. It all comes through your audio / video receiver and high-speed Internet connection.

If you're not a SIRIUS subscriber, you can sign up today for a PREMIUM SIRIUS Internet Radio subscription at www.siriusxm.com <<http://www.siriusxm.com>>. Current subscribers can add a PREMIUM SIRIUS Internet Radio subscription to an existing account.



- To use this function, this unit must be connected to the Internet. For detail on connections and network settings, refer to "Owner's Manual".
- If any error message appears on the front display, see "Error indications on the front display" in "Owner's Manual".
- The actual display may be partly different from display images used on this document depending on the model.

SIRIUS Internet Radio account sign-in

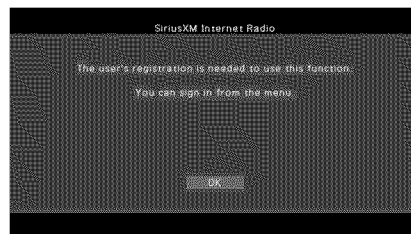
If you have not signed in to your SIRIUS Internet Radio account yet, the sign-in screen appears when you select "SIRIUS IR". To start using the SIRIUS Internet Radio service on this unit, follow the procedure below to sign in to your SIRIUS Internet Radio account.



- If you want to sign in to your SIRIUS Internet Radio account after free trial expired, select "Sign In" from the "Input" menu and then follow from step 4 of this procedure. For details on the "Input" menu, see "Configuring input sources (Input menu)" in "Owner's Manual".

1 Press NET repeatedly to select "SIRIUS IR" as the input source.

The following screen is displayed on the TV if you have not signed in to your SIRIUS Internet Radio account yet.



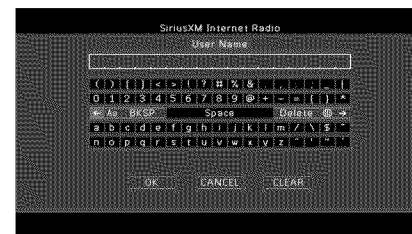
2 Read the description and press ENTER.

3 Use the cursor keys (Δ/▽) to select "Sign In" and press ENTER.

To get started with a 30-day free trial, select "SiriusXM Internet Radio Trial", read the on-screen description and then select "OK" (proceed to step 8).

4 Press ENTER to enter the user name entry screen.

5 Use the cursor keys and ENTER to enter your user name and select "OK".



- To clear the entry, select "CLEAR".

6 Press ENTER to enter the password entry screen.

7 Use the cursor keys and ENTER to enter your password and select "OK".

The following screen appears if you have successfully logged into your account.



- If sign-in failed, the error screen appears. In this case, read the on-screen message and start all over again.

8 Press ENTER.

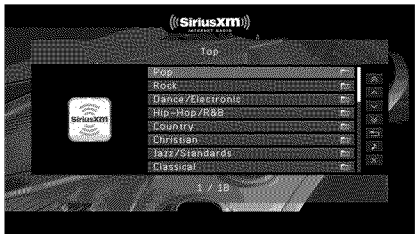
The browse screen is displayed on the TV.

Playback of SIRIUS Internet Radio contents

Follow the procedure below to operate the SIRIUS Internet Radio contents and start playback.

1 Press NET repeatedly to select “SIRIUS IR” as the input source.

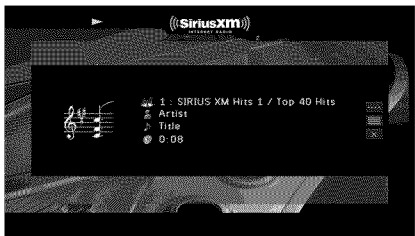
The browse screen is displayed on the TV.



- If playback of any SIRIUS Internet Radio content is ongoing, the playback screen is displayed.

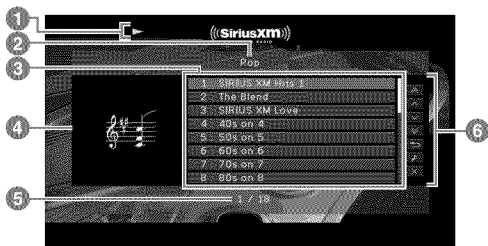
2 Use the cursor keys to select an item and press ENTER.

If a SIRIUS Internet Radio channel is selected, playback starts and the playback screen is displayed.



- To return to the previous screen, press RETURN.
- You can register your favorite items as shortcuts and access them directly by selecting the shortcut numbers. For details, see “Registering favorite items (shortcut)” in “Owner’s Manual”.

Browse screen



1 Playback indicator

2 List name

3 Contents list

Displays the SIRIUS Internet Radio contents. Use the cursor keys to select an item and press ENTER to confirm the selection.

4 Channel art

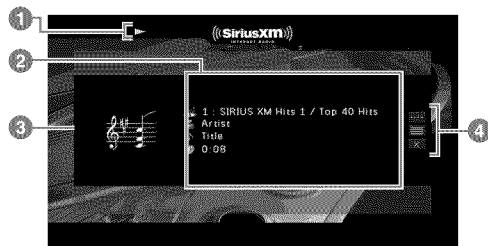
5 Item number/total

6 Operation menu

Use the cursor keys to select an item and press ENTER to confirm the selection.

Menu	Function
1 Page Up	Moves to the previous/next page of the list.
1 Page Down	
10 Pages Up	Moves to 10 pages forward/backward.
10 Pages Down	
Return	Returns to the higher-level list.
Now Playing	Moves to the playback screen.
Screen Off	Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.

Playback screen



1 Playback indicator

2 Playback information

Displays the channel name, artist name, song title and elapsed time.
Use the cursor keys to select information to be scrolled.

3 Channel art

4 Operation menu

Use the cursor keys to select an item and press ENTER to confirm the selection.
To close the submenu, press RETURN.

Menu	Submenu	Function
Play Control	■	Stops playback.
Browse		Moves to the browse screen.
Screen Off		Closes the screen display and shows the background. Press one of the menu operation keys to redisplay it.



- You can also use the external device operation keys (▶, ■) on the remote control to control playback.

■ Switching information on the front display

1 Press INFO.

Each time you press the key, the display item switches.

Display items

Song (song title), Artist (artist name), Channel (channel name), DSP Program (sound mode name), Audio Decoder (decoder name)

Removing the SIRIUS Internet Radio account

Follow the procedure below to remove your SIRIUS Internet Radio account from this unit.

- 1 Press ON SCREEN.
- 2 Use the cursor keys to select “Input” and press ENTER.
- 3 Use the cursor keys (◀/▶) to select “SiriusXM Internet Radio” and press the cursor key (△).
- 4 Use the cursor keys (△/▽) to select “Remove Account” and press ENTER.
- 5 Use the cursor keys to select “OK” and press ENTER.
Your SIRIUS Internet Radio account is removed from this unit.
- 6 To exit from the menu, press ON SCREEN.

■ Checking the registration status of the SIRIUS Internet Radio account

To check the registration status of your SIRIUS Internet Radio account, follow “Removing the SIRIUS Internet Radio account” and select “Account Status” in step 4.



SIRIUS, XM and all related marks and logos are trademarks of Sirius XM Radio Inc. and its subsidiaries. All rights reserved.
Service not available in Alaska and Hawaii.

Information about software

This product uses the following free software.

For information (copyright, etc) about each software, read the original sentences stated below.

■ About The Independent JPEG Group's JPEG software

The Independent JPEG Group's JPEG software

Copyright © 1991-2010, Thomas G. Lane, Guido Vollbeding.

All Rights Reserved except as specified below.

The authors make NO WARRANTY or representation, either express or implied, with respect to this software, its quality, accuracy, merchantability, or fitness for a particular purpose. This software is provided "AS IS", and you, its user, assume the entire risk as to its quality and accuracy.

Permission is hereby granted to use, copy, modify, and distribute this software (or portions thereof) for any purpose, without fee, subject to these conditions:

- (1) If any part of the source code for this software is distributed, then this README file must be included, with this copyright and no-warranty notice unaltered; and any additions, deletions, or changes to the original files must be clearly indicated in accompanying documentation.
- (2) If only executable code is distributed, then the accompanying documentation must state that "this software is based in part on the work of the Independent JPEG Group".
- (3) Permission for use of this software is granted only if the user accepts full responsibility for any undesirable consequences; the authors accept NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code, not just to the unmodified

library. If you use our work, you ought to acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name in advertising or publicity relating to this software or products derived from it. This software may be referred to only as "the Independent JPEG Group's software".

We specifically permit and encourage the use of this software as the basis of commercial products, provided that all warranty or liability claims are assumed by the product vendor.

■ About PNG Reference Library

libpng versions 1.2.6, August 15, 2004, through 1.4.5, December 9, 2010, are Copyright © 2004, 2006-2010 Glenn Randers-Pehrson, and are distributed according to the same disclaimer and license as libpng-1.2.5 with the following individual added to the list of Contributing Authors

Cosmin Truta

libpng versions 1.0.7, July 1, 2000, through 1.2.5 - October 3, 2002, are Copyright © 2000-2002 Glenn Randers-Pehrson, and are distributed according to the same disclaimer and license as libpng-1.0.6 with the following individuals added to the list of Contributing Authors

Simon-Pierre Cadieux
Eric S. Raymond
Gilles Vollant

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of the library or against infringement.

There is no warranty that our efforts or the library will fulfill any of your particular purposes or needs. This library is provided with all faults, and the entire risk of satisfactory quality, performance, accuracy, and effort is with the user.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are Copyright © 1998, 1999 Glenn Randers-Pehrson, and are distributed according to the same disclaimer and license as libpng-0.96, with the following individuals added to the list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are Copyright © 1996, 1997 Andreas Dilger Distributed according to the same disclaimer and license as libpng-0.88, with the following individuals added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

libpng versions 0.5, May 1995, through 0.88, January 1996, are Copyright © 1995, 1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors" is defined as the following set of individuals:

Andreas Dilger
Dave Martindale

List of remote control codes

Liste des codes de commande

Liste der Fernbedienungs-codes

Lista över fjärrstyrningskoder

Elenco dei codici di telecomando

Lista de códigos de mando a distancia

Lijst met afstandsbedieningscodes

Список кодов дистанционного управления

遥控器代码列表

리모콘코드목록

TV		Amtron	0058	Baur	0320, 0349	Cathay	0320, 0349, 0350
		Anam	0179, 0343	Bazin	0282	CCE	0183, 0282
A.R. Systems	0320	Anam National	0052, 0058	Beko	0161, 0269, 0294, 0302, 0311, 0320, 0328, 0351	Celebrity	0055, 0107
Acme	0342	Anglo	0323, 0343			Celera	0039
Acura	0323, 0343	Anitech	0171, 0320, 0323, 0337, 0343	Belcor	0008	Centurion	0320, 0349, 0350
ADC	0337			Bell & Howell	0019, 0054	Century	0339
Admiral	0054, 0178, 0336, 0337, 0339, 0346, 0347	Ansonic	0161, 0168, 0320, 0323, 0341, 0343	Benq	0097, 0242, 0361	CGE	0161, 0171
Advent	0158	AOC	0008, 0026, 0050, 0053	Beon	0320, 0349, 0350	Changhong	0039
Adventura	0057	Apex	0039, 0111, 0217	Best	0161	Chimei	0273
Adyson	0277, 0282, 0342	Arcam	0277, 0282	Bestar	0161, 0320, 0350	Cimline	0323, 0343
Agashi	0277, 0282	Arcam Delta	0342	Binatone	0282, 0342	Citizen	0007, 0008, 0026, 0050, 0058
Agazi	0337	Aristona	0320, 0349, 0350	Blue Sky	0320, 0340		
Aiko	0277, 0282, 0320, 0323, 0342, 0343	Arthur Martin	0321	Blue Star	0348	City	0323, 0343
		ASA	0339, 0347	Boots	0282, 0342	Clarion	0179
Aim	0320	Asberg	0171, 0320, 0350	BPL	0320, 0348	Clarivox	0349
Aiwa	0078, 0379	Astra	0343	Bradford	0058, 0179	Clatronic	0161, 0171, 0282, 0320, 0323, 0337, 0340, 0342, 0343, 0350, 0351
Akai	0050, 0055, 0109, 0159, 0181, 0277, 0282, 0320, 0323, 0340, 0343, 0349, 0350	Asuka	0277, 0282, 0337, 0340, 0342	Brandt	0322, 0345		
		Atlantic	0277, 0320, 0342, 0349, 0350	Brilliant	0182	CMS	0277
				Brinkmann	0320	CMS Hightec	0282
		Atori	0323, 0343	Brionvega	0320, 0339, 0349, 0350	Coby	0197
Akiba	0320, 0340	Auchan	0321	Britannia	0277, 0282, 0342	Colortyme	0008, 0026
Akura	0320, 0323, 0337, 0340	Audiosonic	0161, 0282, 0320, 0340, 0342, 0343, 0349, 0350	Brockwood	0008	Commercial Solutions	0021
Alaron	0277			Broksonic	0109, 0179		
Alba	0161, 0277, 0320, 0323, 0340, 0342, 0343, 0344, 0349, 0351, 0372, 0382	AudioTon	0161, 0282, 0342	Bruns	0339	Concerto	0008, 0026
		Audiovox	0058, 0179, 0194	BTC	0340	Concorde	0323, 0343
Albatron	0140	Ausind	0171	Bush	0269, 0282, 0283, 0304, 0320, 0323, 0328, 0332, 0340, 0343, 0344, 0346, 0348, 0349, 0350, 0372, 0382, 0463, 0470, 0472	Condor	0161, 0277, 0320, 0323, 0342, 0350, 0351
Aleyon	0171	Autovox	0171, 0282, 0337, 0339, 0342			Contec	0179, 0277, 0323, 0342, 0343, 0344
Alleron	0059	Aventura	0051	Candle	0008, 0026, 0050, 0057	Contec/Cony	0012, 0058
Allorgan	0282	Awa	0277, 0282	Capsonic	0337	Continental Edison	0345
Allstar	0320, 0350	Axion	0156	Carena	0320		
America Action	0179	Baird	0282	Carnivale	0050	Cosmel	0323, 0343
AMOi	0276	Bang & Olufsen	0180, 0339	Carrefour	0344	Craig	0058, 0179
Amplivision	0161, 0282, 0321, 0342	Basic Line	0282, 0320, 0323, 0340, 0343, 0350	Carver	0010	Crosley	0010, 0037, 0171, 0339
Amstrad	0320, 0323, 0337, 0340, 0343	Bastide	0282, 0342	Cascade	0320, 0323, 0343		
				Casio	0367		

Crown	0058, 0161, 0171, 0179, 0320, 0323, 0343, 0349, 0350, 0351	Electa	0348	Frontech	0282, 0323, 0337, 0343, 0346, 0347	Grunpy	0058, 0059, 0179
CS Electronics	0277, 0340, 0342	ELECTRO TECH	0343	Fujitsu	0059, 0069, 0074, 0075, 0282	Haier	0157, 0233
CTC Clatronic	0341	Electroband	0055, 0107	Fujitsu General	0282	Halifax	0277, 0282, 0337, 0342
CTX	0205	Electrograph	0176	Fujitsu Siemens	0504, 0505, 0507, 0510, 0511	Hallmark	0008, 0026, 0031
Curtis Mathes	0007, 0008, 0010, 0019, 0021, 0026, 0049, 0050, 0178	Electrohome	0008, 0026, 0052, 0055	Funai	0051, 0058, 0059, 0112, 0113, 0115, 0118, 0119, 0179, 0337	Hampton	0277, 0282, 0342
CXC	0058, 0179	Element	0230	Futurtech	0058, 0179	Hanseatic	0161, 0168, 0282, 0320, 0323, 0342, 0343, 0344, 0349, 0350
Cybertron	0340	Elin	0277, 0320, 0323, 0342, 0349, 0350	Galaxi	0320, 0351	Hantarex	0320, 0323, 0343
Cytron	0152	Elite	0320, 0340, 0350	Galaxis	0161, 0320	Hantor	0320
Daewoo	0007, 0008, 0026, 0037, 0053, 0167, 0266, 0275, 0277, 0282, 0315, 0320, 0323, 0331, 0335, 0342, 0343, 0350, 0381, 0465	Elman	0341	Gateway	0176, 0177, 0241	Harman/Kardon	0010
Dainichi	0277, 0340	Elta	0277, 0323, 0343	GBC	0323, 0343, 0344	Harvard	0058, 0179
Dansai	0277, 0282, 0320, 0337, 0349, 0350	Emerson	0000, 0007, 0008, 0012, 0013, 0019, 0026, 0031, 0037, 0051, 0058, 0059, 0161, 0179, 0320, 0339	GE	0008, 0021, 0023, 0026, 0027, 0031, 0034, 0049, 0052, 0056, 0209	Harwood	0320, 0323
Dantax	0161, 0349	Emprex	0154	Geant Casino	0321	Havermy	0178
Dawa	0320	Envision	0008, 0026, 0050	GEC	0282, 0320, 0342, 0347, 0349, 0350	HCM	0282, 0320, 0323, 0337, 0342, 0343, 0348
Daytron	0007, 0008, 0026, 0323, 0343	Epson	0155, 0206, 0359	Geloso	0323, 0343, 0346	Hema	0282, 0323
De Graaf	0346	Erres	0320, 0349, 0350	General Technic	0323, 0343	Hewlett Packard	0192
Decca	0282, 0320, 0342, 0349, 0350	ESA	0051	Genexxa	0320, 0340, 0347, 0350	Higashi	0277
Dell	0145, 0245	ESC	0282	GFM	0128, 0227	HiLine	0320
Denver	0358, 0362	Etron	0343	Giant	0282	Hinari	0320, 0323, 0340, 0343, 0344, 0349, 0350
Desmet	0320, 0349, 0350	Eurofeel	0282	Gibralter	0008, 0030, 0050, 0062	Hisawa	0321, 0340, 0348
Diamant	0320	Euro-Feel	0337	GoldHand	0277	Hisense	0247
Diamond	0277	Euroline	0349	Goldline	0320	Hitachi	0008, 0012, 0026, 0066, 0084, 0092, 0093, 0120, 0172, 0173, 0255, 0270, 0271, 0282, 0320, 0335, 0338, 0342, 0344, 0346, 0347, 0365, 0382, 0448, 0456, 0467, 0482
DiamondVision	0135, 0143	Euroman	0161, 0277, 0282	GoldStar	0007, 0008, 0012, 0026, 0031, 0050, 0053, 0161, 0277, 0282, 0320, 0323, 0342, 0343, 0346, 0349, 0350	Hornophon	0320, 0350
Dimensia	0049	Euromann	0320, 0337, 0342, 0350	Goodmans	0246, 0272, 0282, 0320, 0323, 0337, 0343, 0344, 0349, 0350, 0462, 0473, 0477	Hoshai	0340
Disney	0219	Europhon	0277, 0282, 0320, 0341, 0342, 0350	Gorenje	0161, 0351	Huanyu	0277, 0342
Dixi	0282, 0320, 0323, 0343, 0349, 0350	Expert	0321	GPM	0340	Hygashi	0277, 0282, 0342
Dream Vision	0461, 0498	Exquisit	0320	GPX	0129	Hyper	0277, 0282, 0323, 0342, 0343
DTS	0323, 0343	Fenner	0323, 0343	Gradiente	0240	Hypson	0282, 0320, 0321, 0337, 0342, 0348, 0349, 0350
Dual	0282, 0320, 0342	Ferguson	0322, 0345, 0349	Graetz	0347	Hyundai	0141
Dual-Tec	0342, 0343	Fidelity	0277, 0320, 0342, 0346	Granada	0171, 0282, 0320, 0321, 0342, 0344, 0346, 0349, 0350	Iberia	0320
Dumont	0008, 0030, 0062, 0282, 0339, 0341, 0342	Filsai	0282	Grandin	0340, 0343, 0348, 0349	ICE	0277, 0282, 0320, 0323, 0337, 0340, 0342, 0343, 0350
Durabrand	0031, 0051, 0179, 0215	Finlandia	0346	Gronic	0282	ICeS	0277
Dux	0349	Finlux	0171, 0282, 0320, 0339, 0341, 0342, 0349, 0350	Grundig	0160, 0161, 0171, 0310, 0320	Ilo	0148, 0153
Dwin	0178	FIRST LINE	0342, 0343, 0350			IMA	0058
Dynatron	0320, 0349, 0350	Firstline	0277, 0282, 0320, 0323			Imperial	0161, 0171, 0320, 0347, 0350, 0351
Dynex	0228, 0231	Fisher	0019, 0161, 0282, 0339, 0342, 0344, 0351			Indiana	0320, 0349, 0350
Elbe	0161, 0168, 0282, 0320	Flint	0320, 0350				
Elcit	0339	Formenti	0171, 0277, 0336, 0339, 0342, 0349				
		Formenti/Phoenix	0277				
		Fortress	0336, 0339				
		Fraba	0161, 0320				
		Friac	0161				

Infinity	0010	KLH	0039	Magnavox	0008, 0009, 0010, 0013,	Motion	0171
InFocus	0250, 0327, 0363, 0479,	Kloss Novabeam	0057, 0058		0026, 0032, 0033, 0048,	Motorola	0052, 0178
	0508	Kneissel	0161, 0168, 0320		0050, 0128, 0211, 0212,	MTC	0008, 0026, 0050, 0053,
Ingelen	0347	Kolster	0320, 0350		0224, 0226, 0239		0161, 0277
Ingersol	0323, 0343	Konka	0340	Magnum	0337, 0343	Multi System	0349
Initial	0153	Korpel	0320, 0349, 0350	Majestic	0054	Multitech	0058, 0161, 0179, 0183,
Inno Hit	0171, 0282, 0320, 0323,	Korting	0161, 0339	Mandor	0337		0277, 0282, 0320, 0323,
	0340, 0342, 0343, 0349,	Kosmos	0320	Manesth	0282, 0320, 0337, 0342,		0341, 0342, 0343, 0344,
	0350	Koyoda	0343		0349, 0350		0346, 0349
Innovation	0337, 0343	KTV	0007, 0050, 0058, 0179,	Marantz	0008, 0010, 0026, 0050,	Murphy	0277, 0342
Insignia	0131, 0228, 0236, 0238		0183, 0282, 0342		0204, 0320, 0349, 0350	NAD	0026, 0031, 0111
Inteq	0030	Kyoto	0277, 0282	Marelli	0339	Naonis	0346
Interactive	0161	Lasat	0161	Mark	0277, 0282, 0320, 0323,	NEC	0008, 0026, 0050, 0052,
Interbuy	0323, 0343	Lenco	0323, 0343		0349, 0350		0053, 0072, 0103, 0282,
Interfunk	0161, 0320, 0339, 0347,	Lenoir	0323, 0342, 0343	Masuda	0282		0344
	0349, 0350	Leyco	0320, 0337, 0349, 0350	Matsui	0282, 0320, 0323, 0342,	Neckermann	0161, 0282, 0320, 0339,
International	0277	LG	0031, 0053, 0066, 0116,		0343, 0344, 0346, 0349,		0342, 0346, 0349, 0350,
Intervision	0161, 0282, 0320, 0337,		0117, 0140, 0161, 0164,		0350, 0455		0351
	0341, 0342		0175, 0195, 0269, 0277,	Matsushita	0017	NEI	0320, 0349, 0350
Irradio	0171, 0320, 0323, 0340,		0282, 0300, 0309, 0317,	Maxent	0147, 0176	Net-TV	0176
	0343, 0349, 0350		0320, 0323, 0328, 0342,	Mediator	0320, 0349, 0350	Neufunk	0320, 0323
Isukai	0320, 0340		0343, 0346, 0349, 0350,	Medion	0320, 0337, 0343	New Tech	0343, 0350
ITC	0282, 0342		0366, 0368, 0377, 0466,	Megapower	0140	New World	0340
ITS	0277, 0320, 0340, 0348,		0471, 0478	Megatron	0026, 0031	NewTech	0282, 0320, 0323
	0350	LG/GoldStar	0164	MElectronic	0277, 0282, 0320, 0323	Nicamagic	0277, 0342
ITT	0343, 0347	LiesenK	0349	Melvox	0321	Nikkai	0277, 0282, 0320, 0323,
ITV	0320, 0343, 0349	Liesenkotter	0320	Memorex	0019, 0026, 0031, 0053,		0337, 0340, 0342, 0349,
Janeil	0057	Life	0337, 0343		0054, 0137, 0215, 0323,		0350
JBL	0010	Lifetec	0320, 0323, 0337, 0343		0343	Nikko	0026, 0031, 0050
JC Penney	0007, 0008, 0026, 0027,	Lloyds	0323	Memphis	0323, 0343	Nobliko	0171, 0277, 0341, 0342
	0049, 0053, 0056	Loewe	0161, 0168, 0265, 0320,	Mercury	0320, 0323	Nokia	0347
JCB	0055, 0107		0330, 0352	Metz	0339	Norcent	0201
Jensen	0008, 0026	Loewe Opta	0339, 0349, 0350	MGA	0008, 0026, 0031, 0050,	Nordic	0282
JVC	0012, 0014, 0015, 0056,	Logik	0054		0053	Nordmende	0339, 0345, 0347, 0350
	0064, 0065, 0067, 0169,	Luma	0320, 0323, 0346, 0349	Micromaxx	0337, 0343	Nordvision	0349
	0174, 0297, 0314, 0344,	Lumatron	0282, 0320, 0346, 0349,	Microstar	0337, 0343	Novatronix	0320
	0350, 0375		0350	Midland	0007, 0021, 0023, 0027,	Oceanic	0321, 0347
Kaisui	0277, 0282, 0320, 0323,	Lux May	0350		0030, 0056, 0062	Okano	0161, 0320, 0351
	0340, 0342, 0343, 0348	Luxman	0008, 0026	Minerva	0171	Olevia	0102, 0199, 0200, 0207,
Kamosonic	0342	Luxor	0282, 0342, 0346	Minoka	0320, 0350		0222
Kamp	0277, 0342	LXI	0010, 0019, 0021, 0026,	Mintek	0153	ONCEAS	0342
Kapsch	0347		0027, 0031, 0049, 0111	Mitsubishi	0008, 0026, 0031, 0053,	Onwa	0058, 0179
Karcher	0161, 0320, 0342, 0343,	M Electronic	0342, 0343, 0345, 0347,		0066, 0084, 0093, 0098,	Opera	0320
	0349		0349, 0350		0150, 0178, 0289, 0320,	Oppo	0130
Kawasho	0008, 0026, 0055, 0277	MAG	0096		0339, 0344, 0350, 0376	Optimus	0017, 0019
KEC	0179	Magnadyne	0339, 0341, 0349	Mivar	0161, 0168, 0171, 0277,	Optoma	0144
Kendo	0161, 0320, 0341, 0346	Magnafon	0171, 0277, 0341, 0342		0282, 0342	Optonica	0178
Kenwood	0008, 0026, 0050			Monivision	0140	Orbit	0320, 0350
KIC	0282			Montgomery Ward	0054		
Kingsley	0277, 0342						

Orion	0043, 0146, 0283, 0320, 0323, 0328, 0343, 0349, 0350	Phonola	0277, 0320, 0339, 0349, 0350	RCA	0008, 0021, 0024, 0025, 0026, 0027, 0042, 0049, 0052, 0053, 0063, 0136, 0225	Schneider	0282, 0316, 0318, 0320, 0333, 0340, 0342, 0349, 0350, 0382
Online	0320	Pilot	0007, 0008, 0050	Realistic	0019, 0031, 0050, 0179	Scotch	0026, 0031
Osaki	0282, 0320, 0337, 0340, 0342	Pioneer	0008, 0026, 0094, 0095, 0161, 0320, 0345, 0347, 0349, 0350, 0458, 0480	Recor	0320	Scott	0008, 0012, 0026, 0031, 0058, 0059, 0149, 0179
Oso	0340	Plantron	0320, 0323, 0337, 0350	Redstar	0320	Sears	0008, 0010, 0019, 0021, 0026, 0027, 0031, 0049, 0051, 0059, 0111
Otto Versand	0282, 0320, 0336, 0342, 0344, 0348, 0349, 0350	Playsonic	0282	Reflex	0320	SEG	0277, 0282, 0320, 0323, 0337, 0341, 0342, 0344, 0349, 0382
Pael	0277, 0342	Polaroid	0039, 0142, 0202, 0234	Revox	0161, 0320, 0349, 0350	SEI	0320
Palladium	0161, 0282, 0320, 0342, 0351	Poppy	0323, 0343	Rex	0337, 0346, 0347	SEI-Sinudyne	0339, 0341, 0347
Palsonic	0282	Portland	0007, 0008, 0026, 0053	RFT	0161, 0168, 0339	Seleco	0344, 0346, 0347
Panama	0277, 0282, 0320, 0323, 0337, 0342, 0343	Prandoni-Prince	0171, 0346	Rhapsody	0277	Sencora	0323, 0343
Panasonic	0016, 0017, 0020, 0022, 0023, 0035, 0052, 0056, 0084, 0085, 0133, 0163, 0193, 0284, 0286, 0290, 0292, 0320, 0325, 0347, 0356, 0483	Precision	0282, 0342	R-Line	0320, 0349, 0350	Sentra	0323
Panavision	0320	Prima	0157, 0243, 0323, 0343, 0347	Roadstar	0323, 0337, 0340, 0343	Serino	0277
Pathe Cinema	0161, 0168, 0277, 0321, 0342	Princeton	0140	Robotron	0339	Sharp	0000, 0001, 0002, 0003, 0007, 0008, 0012, 0026, 0060, 0088, 0089, 0091, 0138, 0165, 0170, 0178, 0198, 0229, 0262, 0278, 0279, 0291, 0308, 0312, 0336, 0344, 0354, 0370, 0449, 0450, 0451, 0464, 0474, 0476, 0481
Pausa	0323, 0343	Prism	0023, 0056	Royal Lux	0161	Sheng Chia	0178
Penney	0021, 0023, 0031, 0050, 0111	Profex	0323, 0343	RTF	0339	Shogun	0008
Perdio	0277, 0320	Profi-Tronic	0320, 0350	Runco	0030, 0050, 0062	Siarem	0320, 0339, 0341
Perfekt	0320	Proline	0320, 0350	Saba	0298, 0322, 0339, 0345, 0347	Sierra	0320, 0350
Philco	0008, 0009, 0010, 0012, 0026, 0050, 0052, 0053, 0161, 0171, 0320, 0339	Proscan	0021, 0027, 0049	Saisho	0282, 0323, 0337, 0342, 0343	Siesta	0161
Philharmonic	0282, 0342	Prosonic	0161, 0277, 0282, 0320, 0342, 0349	Salora	0346, 0347	Signature	0054
Philips	0008, 0009, 0010, 0011, 0012, 0032, 0048, 0049, 0052, 0122, 0128, 0134, 0186, 0187, 0213, 0221, 0224, 0226, 0239, 0256, 0257, 0259, 0261, 0263, 0267, 0280, 0281, 0287, 0296, 0299, 0301, 0303, 0305, 0313, 0319, 0320, 0324, 0333, 0339, 0342, 0349, 0350, 0353, 0357, 0360, 0380, 0383, 0452, 0459, 0460	Protech	0282, 0337, 0341, 0342, 0343, 0349, 0350	Sambers	0171, 0341	Silver	0344
Philips Magnavox	0011, 0032, 0033	Proton	0008, 0012, 0026, 0031	Sampo	0007, 0008, 0026, 0050, 0176	Singer	0321, 0339, 0341
Phoenix	0161, 0277, 0320, 0339, 0349, 0350	Protron	0196	Samsung	0004, 0005, 0006, 0007, 0008, 0012, 0026, 0031, 0036, 0050, 0053, 0076, 0077, 0079, 0114, 0124, 0125, 0126, 0127, 0139, 0161, 0183, 0185, 0190, 0191, 0258, 0264, 0277, 0282, 0320, 0323, 0334, 0337, 0342, 0343, 0349, 0350, 0351, 0373, 0453, 0468	Sinudyne	0320, 0339, 0341, 0349
		PROVIEW	0096, 0246			Skantic	0347
		Provision	0320, 0349	Sandra	0277, 0282, 0342	Solavox	0347
		Pulsar	0008, 0030, 0062	Sansui	0043, 0109, 0320, 0350	Sonitron	0161, 0282
		Pye	0256, 0320, 0349, 0350, 0378	Sanyo	0008, 0019, 0068, 0070, 0071, 0099, 0161, 0168, 0223, 0237, 0277, 0282, 0288, 0295, 0323, 0342, 0344, 0369, 0469	Sonoko	0282, 0320, 0323, 0337, 0342, 0343, 0349, 0350
		Pymi	0323, 0343			Sonolor	0321, 0347
		Quandra Vision	0321			Sontec	0161, 0320, 0349, 0350
		Quasar	0017, 0023, 0052, 0056			Sony	0038, 0044, 0045, 0047, 0055, 0090, 0104, 0105, 0107, 0110, 0123, 0184, 0220, 0248, 0249, 0251,
		Quelle	0282, 0320, 0337, 0342, 0349, 0350				
		Questa	0344				
		Radialva	0320	SBR	0320, 0349		
		RadioShack	0019, 0021, 0031, 0050, 0179, 0320	Sceptre	0235, 0244		
		RadioShack/Realistic	0007, 0008, 0012, 0026, 0049, 0058	Schaub Lorenz	0347		
		Radiola	0282, 0320, 0349, 0350				
		Radiomarelli	0320, 0339				
		Radiotone	0161, 0320, 0323, 0350				
		Rank	0344				

	0252, 0254, 0326, 0343, 0344, 0371, 0374, 0457, 0475, 0486	Techwood	0008, 0023, 0026, 0056	United	0349	Yorx	0340
Sound & Vision	0340, 0341	TEDELEX	0282	Universum	0161, 0171, 0282, 0320, 0337, 0349, 0350, 0351	Zanussi	0282, 0346
Soundesign	0008, 0026, 0031, 0058, 0059, 0179	Teknika	0007, 0008, 0010, 0012, 0026, 0053, 0054, 0058, 0059, 0179	Univox	0320	Zenith	0008, 0028, 0029, 0030, 0031, 0054, 0061, 0062
Soundwave	0320, 0349, 0350	Teleavia	0345	Vector Research	0050		
Squareview	0051	Telecor	0282, 0320	Vestel	0282, 0320, 0346, 0347, 0349, 0350, 0351		
SSS	0008, 0058, 0179	Telefunken	0320, 0322, 0345, 0350	Vexa	0320, 0323, 0343, 0349		
Standard	0282, 0320, 0323, 0340, 0342, 0343, 0350	Telegazi	0320	Victor	0015, 0344, 0350		
Starlite	0058, 0179, 0320, 0323, 0349	Telemeister	0320	VIDEOLOGIC	0277		
Stenway	0348	Telesonic	0320	Videologique	0277, 0282, 0340, 0342		
Stern	0346, 0347	Telestar	0320	VideoSystem	0320, 0350		
Strato	0320, 0323	Teletech	0320, 0323, 0343, 0349	Videotechnic	0277, 0282		
Stylandia	0282	Teleton	0282, 0342	Vidikron	0010		
Sunkai	0343	Televideon	0277	Vidtech	0008, 0026, 0031, 0053		
Sunstar	0320, 0323	Televiso	0321	Viewsonic	0176, 0203, 0232, 0364		
Sunwood	0320, 0323, 0343, 0350	Tensai	0282, 0320, 0323, 0340, 0343, 0350	Viking	0057		
Superla	0277, 0282, 0342	Tesmet	0350	Viore	0148		
Superscan	0013, 0178	Tevion	0337, 0343	Visiola	0277, 0342		
SuperTech	0277, 0320, 0323	Texet	0277, 0282, 0323, 0342	Vision	0282, 0320, 0350		
Supra	0323, 0343	Thomson	0162, 0188, 0189, 0285, 0320, 0322, 0342, 0345, 0350	Vizio	0008, 0177, 0218, 0242, 0500, 0501, 0502, 0503, 0506		
Supre-Macy	0057	Thorn	0320, 0349	Vortec	0320, 0349, 0350		
Supreme	0055, 0107	TMK	0008, 0026, 0031	Voxson	0171, 0320, 0339, 0346, 0347, 0350		
Susumu	0340	TNCi	0030	Waltham	0282, 0320, 0342		
Sutron	0323, 0343	Tokai	0282, 0320, 0350	Wards	0008, 0009, 0010, 0026, 0031, 0048, 0049, 0050, 0053, 0054, 0059		
SVA	0151	Tokyo	0277, 0342	Watson	0320, 0349, 0350		
Sydney	0277, 0282, 0342	Tomashi	0348	Watt Radio	0277, 0341, 0342		
Sylvania	0008, 0009, 0010, 0011, 0013, 0026, 0048, 0050, 0051, 0128, 0227, 0253	Toshiba	0018, 0019, 0040, 0041, 0046, 0073, 0100, 0103, 0108, 0109, 0111, 0121, 0132, 0166, 0208, 0210, 0214, 0217, 0260, 0268, 0282, 0283, 0293, 0304, 0306, 0307, 0329, 0344, 0355, 0454	Waycon	0111		
Symphonic	0051, 0058, 0062, 0128, 0179, 0215	Totevision	0007	Wega	0320, 0339, 0344		
Syntax	0199	Towada	0282, 0347	Wegavox	0323		
Syntax-Brilliant	0199	Trakton	0282	Weltblick	0282, 0320, 0349, 0350		
Sysline	0349	Trans Continens	0282, 0320	Westinghouse	0107, 0216, 0220		
Sytong	0277	Transtec	0277	White Westinghouse	0037, 0090, 0277, 0320, 0341, 0342, 0349		
Tandy	0178, 0282, 0336, 0340, 0342, 0347	Trident	0282	Wincom	0101, 0106		
Tashiko	0277, 0282, 0342, 0344, 0346	Triumph	0320	Xrypton	0320		
Tatung	0052, 0177, 0282, 0320, 0342, 0349, 0350	Uher	0161, 0171, 0320, 0347, 0350	Yamaha	0008, 0026, 0050, 0053, 0080, 0081, 0082, 0083, 0086, 0087		
TCM	0337, 0343	Unic Line	0320	Yamishi	0282, 0320		
Teac	0282, 0320			Yokan	0320		
Tec	0282, 0323, 0342, 0343			Yoko	0161, 0277, 0282, 0320, 0323, 0337, 0340, 0342, 0343, 0349, 0350		
Technics	0017, 0023, 0056						
TechniSat	0274, 0496, 0497, 0499						

VCR

ABS	1016
Adventura	1069
Adyson	1008
Aiwa	1024, 1026, 1027, 1069
Akai	1021, 1027
Akiba	1008, 1029
Akura	1008, 1027, 1029
Alba	1008, 1009, 1024, 1025, 1029, 1030
Alienware	1016
Ambassador	1030
American High	1068
Amstrad	1008, 1009, 1026
Anitech	1008, 1029
Apex	1088
ASA	1028, 1031
Asha	1070
Asuka	1008, 1026, 1028, 1029, 1031
Audio Dynamics	1064
Audiosonic	1009
Audiovox	1071
Baird	1009, 1025, 1026, 1027
Bang & Olufsen	1017
Basic Line	1008, 1009, 1024, 1025, 1029, 1030
Baur	1028
Beaumark	1070
Bell & Howell	1065
Bestar	1009, 1025, 1030
Black Panther Line	1009, 1025
Blaupunkt	1028
Bondstec	1008, 1030
Broksonic	1100
Bush	1008, 1009, 1024, 1025, 1029, 1049, 1051, 1063, 1217
Calix	1071
Candle	1070, 1071
Canon	1068
Cathay	1009

Catron	1030	Firstline	1008, 1024, 1029, 1031	iBUYPOWER	1016	Matsushita	1068
CGE	1026, 1027	Fisher	1065	Impego	1030	Media Center PC	1016
Cimline	1008, 1024, 1029	Flint	1024	Imperial	1026	Mediator	1028
CineVision	1104	Formenti/Phoenix	1028	Inno Hit	1008, 1009, 1025, 1028, 1029, 1030	Medion	1024
Citizen	1070, 1071	Frontech	1030	Innovation	1024	MEI	1068
Clatronic	1008, 1030	Fuji	1068	Instant Replay	1068	Memorex	1023, 1026, 1031, 1065, 1068, 1069, 1070, 1071, 1098, 1114
Colortyme	1064	Fujitsu	1026	Interbuy	1008, 1031	Memphis	1008, 1029
Condor	1009, 1025, 1030	Funai	1026, 1069	Interfunk	1028	MGN Technology	1070
Craig	1070, 1071	Galaxy	1026	Intervision	1009, 1026	Micromaxx	1024
Crown	1008, 1009, 1025, 1029, 1030	Garrard	1069	Irradio	1008, 1029, 1031	Microsoft	1016
Curtis Mathes	1064, 1068, 1070	Gateway	1016	ITT	1027	Microstar	1024
Cybernex	1070	GBC	1029, 1030	ITV	1009, 1025, 1031	Migros	1026
CyberPower	1016	GE	1068, 1070	JC Penney	1064, 1065, 1068, 1070, 1071	Mind	1016
Daewoo	1009, 1025, 1030, 1038, 1069, 1223	GEC	1028	JCL	1068	Mitsubishi	1026, 1028, 1079
Dansai	1008, 1009, 1029	Geloso	1029	JVC	1007, 1018, 1027, 1039, 1064, 1065, 1066, 1067, 1078, 1089, 1092, 1093, 1094, 1095, 1113, 1208, 1209, 1212, 1213, 1215, 1218	Motorola	1068
Dantax	1024	General	1030			MTC	1070
Daytron	1009, 1025	General Technic	1024	Kaisui	1008, 1029	Multitech	1008, 1026, 1028, 1029, 1030, 1069, 1070
DBX	1064	GOI	1018	Karcher	1028	Murphy	1026
De Graaf	1028	GoldHand	1008, 1029	Kendo	1008, 1024, 1025, 1030	NEC	1027, 1064, 1065
Decca	1026, 1027, 1028	Goldstar	1026, 1031, 1064, 1071	Kenwood	1027, 1064, 1065	Neckermann	1027, 1028
Dell	1016	Goodmans	1008, 1009, 1025, 1026, 1029, 1030, 1031	Kodak	1068, 1071	NEI	1028
Denko	1008	Gradiente	1069	Korpel	1008, 1029	Nesco	1008, 1029
DiamondVision	1096	Graetz	1027	Kyoto	1008	Nikkai	1008, 1009, 1030
DigiFusion	1014	Granada	1028	Lenco	1025	Nikko	1071
DIRECTV	1019, 1105, 1110, 1111, 1113, 1116, 1122	Grandin	1008, 1009, 1025, 1026, 1029, 1030, 1031	Leyco	1008, 1029	Niveus Media	1016
Dish Network	1018	Grundig	1028, 1029	LG	1010, 1026, 1031, 1047, 1054, 1056, 1071, 1103, 1221	Noblex	1070
Dishpro	1018	Hanseatic	1009, 1028, 1031	Lifetec	1024	Nokia	1009, 1027
Dual	1009, 1027, 1028	Harley Davidson	1069	Linksys	1016	Nordmende	1027
Dumont	1026, 1028	Harman/Kardon	1064	Lloyd's	1069	Northgate	1016
Durabrand	1114	Harwood	1008	Loewe Opta	1028, 1031	Oceanic	1026, 1027
Dynatech	1069	HCM	1008, 1029	Logik	1008, 1029	Okano	1008, 1009, 1024
Echostar	1018	Headquarter	1065	Lumatron	1009, 1025	Olympus	1068
Elbe	1009	Hewlett Packard	1016	Luxor	1008	Optimus	1071
Elcotech	1008	Hinari	1008, 1009, 1024, 1029	LXI	1071	Orion	1023, 1024, 1051, 1115, 1217
Electrohome	1071	Hisawa	1024	M Electronic	1026	Orson	1026
Electroponic	1071	Hitachi	1011, 1026, 1027, 1028, 1046, 1062	Magnavox	1020, 1068, 1114, 1126	Osaki	1008, 1026, 1029, 1031
Elsay	1008	HNS	1110	Magnin	1071	Otto Versand	1028
Elta	1008, 1009, 1029	Howard Computers	1016	Manesth	1008, 1029	Palladium	1008, 1027, 1029, 1031
Emerson	1008, 1020, 1068, 1069, 1071	HP	1016	Marantz	1028, 1064, 1065, 1068	Panasonic	1000, 1022, 1044, 1055, 1068, 1072, 1085, 1090, 1091, 1120, 1121, 1214
ESC	1009, 1025	HTS	1018	Mark	1009	Pathe Marconi	1027
Etzuko	1008, 1029	Hughes	1111, 1113, 1122	Marta	1071	Perdio	1026
Expressvu	1018	Hughes Network Systems	1110, 1116	Matsui	1024, 1031	Philco	1008, 1068
Ferguson	1027	Humax	1012, 1110, 1113				
Fidelity	1008, 1026	Hush	1016				
Finlandia	1028	Hypson	1008, 1009, 1024, 1029				
Finlux	1026, 1027, 1028						

Philips	1006, 1013, 1028, 1035, 1040, 1045, 1046, 1050, 1058, 1059, 1061, 1068, 1076, 1101, 1110, 1113, 1116, 1117, 1122, 1126, 1210, 1211	Sanky	1114	Tandberg	1009	Zenith	1114
Philips Magnavox	1076	Sansui	1023, 1027, 1106, 1115	Tandy	1065	ZT Group	1016
Phonola	1028	Sanyo	1032, 1065, 1070	Tashiko	1026, 1071		
Pilot	1071	Saville	1009	Tatung	1026, 1027, 1028		
Pioneer	1028, 1036	SBR	1028	TCM	1015, 1024, 1042		
Polaroid	1088, 1099	Schaub Lorenz	1026, 1027	Teac	1009, 1069		
Portland	1009, 1025, 1030	Schneider	1008, 1009, 1024, 1025, 1026, 1028, 1029, 1030, 1031	Tec	1008, 1009, 1030		
Prinz	1026	Sears	1065, 1068, 1071	Technics	1068	4Kus	2051
Profex	1029	SEG	1008, 1009, 1029	Teknika	1068, 1069, 1071	Accurian	2142
Proline	1026	SEI-Sinudyne	1028	Teleavia	1027	Advent	2155, 2251
Proscan	1019	Seleco	1027	Telefunken	1027	AEG	2362
Prosonic	1009, 1024	Sentra	1008, 1030	Teletech	1008, 1009	Airis	2364
Pulsar	1114	Sentron	1008, 1029	Tenosal	1008, 1029	Aiwa	2322
Pye	1028, 1102	Sharp	1003, 1033, 1077, 1107, 1127, 1219	Tensai	1008, 1026, 1029, 1031	Akai	2145, 2177, 2179, 2248
Quarter	1065	Shintom	1008, 1029	Tevion	1024	Akura	2356
Quartz	1065	Shivaki	1031	Thomson	1005, 1027	Alba	2064, 2165, 2186, 2337, 2346
Quasar	1068	Shogun	1070	Thorn	1027	Alco	2149
Quelle	1026, 1028	Siemens	1031	Tivo	1108, 1110, 1111, 1113, 1117, 1118, 1119, 1122	Alize	2361
Radialva	1008	Silva	1031	TMK	1070	Allegro	2133
RadioShack	1071	Silver	1009	Tokai	1008, 1029, 1031	Amitech	2362
RadioShack/Realistic	1065, 1068, 1069, 1070, 1071	Singer	1068	Tonsai	1029	Amphion MediaWorks	2195
Radiola	1028	Sinudyne	1028	Toshiba	1004, 1016, 1027, 1028, 1037, 1049, 1052, 1086, 1087, 1097, 1109, 1112, 1194	AMW	2195, 2363
Radix	1071	Solavox	1030			Apex	2030, 2124, 2125, 2126, 2127, 2130, 2131
Randex	1071	Sonic Blue	1022, 1123	Totevision	1070, 1071	Apple	2241
RCA	1019, 1068, 1070, 1075, 1110, 1113, 1122, 1125	Sonneclair	1008	Touch	1016	Arrgo	2138
Realistic	1065, 1068, 1069, 1070, 1071	Sonoko	1009, 1025	Towada	1008, 1029	Asono	2364
ReplayTV	1022, 1123	Sontec	1031	Towika	1008, 1029	Aspire	2152, 2222
Rex	1027	Sony	1001, 1016, 1048, 1053, 1073, 1074, 1080, 1081, 1082, 1083, 1108, 1118, 1216	TVA	1030	Astar	2240
RFT	1008, 1028, 1030	Stack	1016	Uher	1031	ATACOM	2364
Ricavision	1016	Stack 9	1016	UltimateTV	1019	Audiovox	2061, 2149
Roadstar	1008, 1009, 1025, 1029, 1031	Standard	1009, 1025	Ultravox	1009	Avious	2367
Royal	1008	Stern	1009	Unitech	1070	Awa	2363
Runco	1114	STS	1068	United Quick Star	1009, 1025	Axion	2249
Saba	1027	Sunkai	1024	Universum	1026, 1028, 1031	Bang & Olufsen	2128
Saisho	1024, 1029	Sunstar	1026	Vector Research	1064	Baze	2367
Samsung	1002, 1034, 1041, 1043, 1057, 1060, 1070, 1084, 1110, 1116, 1122, 1124, 1220, 1222	Suntronic	1026	Video Concepts	1064	BBK	2364
Samurai	1008, 1030	Sunwood	1008, 1029	Videon	1024	Bellagio	2363
		Superscan	1020	Videosonic	1070	Best Buy	2359
		Sylvania	1020, 1068, 1069, 1102, 1126	Viewsonic	1016	Blaupunkt	2131
		Symphonic	1008, 1069, 1126	Voodoo	1016	Blue Parade	2157
		Systemax	1016	Wards	1068, 1069, 1070, 1071	Boghe	2382
		Tagar Systems	1016	Weltblick	1031	Brainwave	2362
		Taisho	1024	XR-1000	1068, 1069	Brandt	2148, 2188
				Yamaha	1064, 1065	Broksonic	2145, 2146
				Yamishi	1008, 1029	Bush	2064, 2110, 2170, 2268, 2290, 2346, 2358, 2367, 2383
				Yokan	1008, 1029		
				Yoko	1008, 1029, 1030, 1031		

DVD

California Audio Labs		Elta	2341, 2361, 2362	2260, 2262, 2263, 2321,	Minowa	2367
2151		Emerson	2129, 2137, 2150	2324, 2326, 2327, 2343,	Mintek	2131, 2245
Cambridge Audio	2354	Enterprise	2129	2464, 2465, 2468, 2469,	Mitsubishi	2003
CAT	2352, 2353	Enzer	2380	2471	Mizuda	2358, 2359
CAVS	2192	Epson	2247	Jwin	Monyka	2380
Centrum	2353	ESA	2137	Kansai	Mustek	2186
CGV	2354, 2362	Finlux	2354, 2362, 2367	Kawasaki	Mx Onda	2354
Changhong	2140	Fintec	2377	Kennex	Mysral	2366
Cinetec	2363	Fisher	2134	Kenwood	Naiko	2362
CineVision	2133, 2237	Funai	2137	KeyPlug	Nesa	2131
Clatronic	2358, 2367	Gateway	2051	Kihiro	Neufunk	2380
Coby	2031, 2046, 2360	GE	2029, 2131, 2156	Kingavon	Nevir	2362
Conia	2383	Gericom	2351	Kiss	Next Base	2143
Continental Edison		GFM	2226	KLH	Nexstech	2243
2363		Giec	2382	Koda	NU-TEC	2383
Crown	2362	Global Solutions	2355	Koss	Onkyo	2159, 2368
C-Tech	2355	Global Sphere	2355	KXD	Oopla	2051
Curtis Mathes	2139	Go Video	2133, 2213	Landel	Oppo	2196, 2255
CVG	2377	Goodmans	2165, 2280, 2291, 2358,	Lasonic	Optim	2381
CyberHome	2022, 2098, 2138, 2187,		2371, 2376, 2382	Lawson	Optimus	2180
2336		GPX	2227	Lecson	Orava	2358
Cytron	2244	Gradiente	2151	Lenco	Orbit	2363
Daenyx	2363	Graetz	2380	Lenox	Orion	2073, 2110
Daewoo	2001, 2133, 2276, 2298,	Greenhill	2131	LG	Oritron	2148, 2158
2330, 2362, 2363, 2377		Grundig	2349		P&B	2358
Daewoo International		Grunkel	2362, 2366		Pacific	2355
2363		GVG	2377		Panasonic	2011, 2024, 2034, 2042,
Dalton	2357	H&B	2358	Life		2058, 2062, 2066, 2067,
Dansai	2362, 2381	H_her	2364	Lifetec		2093, 2116, 2117, 2118,
Daytek	2184, 2195, 2363	Haaz	2354, 2355	Limit		2119, 2120, 2121, 2122,
Dayton	2363	Haier	2254	Liquid Video		2123, 2151, 2159, 2164,
DEC	2358	Harman/Kardon	2047, 2135	Liteon		2166, 2167, 2172, 2173,
Decca	2362	HiMAX	2359	Loewe		2175, 2209, 2214, 2275,
Denon	2059, 2151, 2193, 2332	Hitachi	2062, 2090, 2115, 2274,	LogicLab		2277, 2278, 2281, 2282,
Denver	2356, 2358, 2360, 2370		2282, 2316, 2359, 2380	Magnavox		2283, 2301, 2374, 2470
Denzel	2380	Hiteker	2130			2197
Desay	2205	Home Tech Industries			Parasound	2364
Diamond	2354, 2355		2364	Magnex	peekTON	2008, 2012, 2025, 2044,
DiamondVision	2225, 2232	Hyundai	2366	Majestic	Philips	2050, 2051, 2053, 2060,
Disney	2010, 2028	Ilo	2245	Marantz		2072, 2108, 2111, 2147,
DK Digital	2339	Initial	2131, 2245	Marquant		2159, 2163, 2169, 2174,
Dmtech	2176	Innovation	2182	Matsui		2181, 2185, 2230, 2261,
Dual	2380	Insignia	2002, 2137, 2253	McIntosh		2266, 2267, 2286, 2287,
Durabrand	2136	Integra	2157	Mecotek		2289, 2295, 2300, 2302,
DVX	2355	Irradio	2053	Medion		2317, 2328, 2338, 2342,
Easy Home	2359	iSymphony	2246	Memorex		2350, 2467
Eclipse	2354	JBL	2135	MiCO	Phonotrend	2367
E-Dem	2364	JVC	2020, 2096, 2097, 2099,	Micromaxx	Pioneer	2016, 2017, 2018, 2019,
Electrohome	2362		2100, 2101, 2102, 2103,	Microsoft		2035, 2092, 2094, 2095,
Elin	2362		2106, 2107, 2160, 2257,	Microstar		2109, 2157, 2180, 2190,
				Minoka		

2212, 2269, 2272, 2299,
2304, 2305, 2306, 2307,
2308, 2309, 2310, 2311,
2344, 2345, 2347, 2379

Pointer 2362
Polaroid 2125, 2215, 2235
Portland 2362
Powerpoint 2363
Prima 2252
Proceed 2130
Proscan 2156
Prosonic 2360, 2377
Protron 2202
Provision 2358
Pye 2144
Qwestar 2148
Raite 2380
RCA 2021, 2029, 2104, 2105,
2131, 2149, 2156, 2157,
2229

RedStar 2356, 2360, 2362
Regent 2153
Reoc 2355
Rimax 2361
Rio 2133
Roadstar 2331, 2358
Ronin 2363
Rotel 2203
Rowa 2154, 2383
Rowsonic 2353
Saba 2148, 2188
Sabaki 2355
Saivod 2362
Sampo 2141
Samsung 2000, 2045, 2077, 2112,
2113, 2114, 2115, 2151,
2200, 2216, 2219, 2228,
2264, 2265, 2271, 2279,
2294, 2303, 2329, 2365

Sansui 2073, 2145, 2354, 2355,
2362
Sanyo 2134, 2145, 2217, 2292
ScanMagic 2186
Schaub Lorenz 2362
Schneider 2176
Scientific Labs 2355
Scott 2161, 2357
Seeltech 2364
SEG 2162, 2355, 2363, 2380

Sharp 2006, 2040, 2088, 2091,
2182, 2194, 2220, 2221,
2231, 2236, 2293, 2340

Shinsonic 2245
Sigmatek 2359, 2364
Silva 2356
Singer 2354, 2355
Skymaster 2325, 2355
Skyworth 2356
Slim Art 2362
SM Electronic 2355
Sonic Blue 2133
Sontech 2366
Sony 2004, 2005, 2007, 2009,
2014, 2015, 2023, 2026,
2027, 2052, 2068, 2069,
2070, 2071, 2074, 2075,
2084, 2085, 2087, 2168,
2171, 2208, 2210, 2211,
2258, 2273, 2284, 2285,
2312, 2313, 2314, 2315,
2318, 2319, 2466

Soundmaster 2355
Soundmax 2355
Spectra 2363
Spectroniq 2201
Standard 2355
Star Cluster 2355
Starmedia 2358, 2364
Sungale 2204
Sunkai 2362
Superscan 2150
Supervision 2355
Sylvania 2012, 2137, 2150, 2178,
2230, 2239

Symphonic 2108, 2230
Synn 2355
T.D.E. Systems 2366
Tatung 2001, 2362
TCM 2182, 2297
Teac 2149, 2333, 2355, 2383
Tec 2356
Technics 2151
Technika 2362, 2367
Telefunken 2353
Tensai 2362
Tevion 2182, 2355, 2357
Theta Digital 2157
Thomson 2183, 2188, 2334, 2372
Tokai 2356, 2380

Top Suxess 2364
Toshiba 2032, 2036, 2037, 2039,
2048, 2049, 2054, 2055,
2072, 2073, 2076, 2078,
2079, 2086, 2145, 2159,
2218, 2233, 2256, 2259,
2296, 2369

TRANScontinents 2363, 2367
Transonic 2367
Trio 2362
Trutech 2242
TruVision 2359
TSM 2364
Umax 2361
United 2367
Urban Concepts 2159
US Logic 2245
Venturer 2149
Viewmaster 2364
Vocopro 2206
VocoStar 2207
Waitec 2364
Welltech 2382
Westinghouse 2063, 2250
Wharfedale 2354, 2355
Woxter 2361, 2364
Xbox 2156, 2183
Xlogic 2355, 2362
XMS 2362
Xoro 2382
Yamada 2051, 2361, 2363
Yamaha 2056, 2064, 2065, 2080,
2081, 2082, 2083, 2089,
2118, 2151, 2323

Yamakawa 2363, 2380
Yukai 2186
Zenith 2002, 2129, 2133, 2159,
2223

Blu-ray Disc

JVC 2475
LG 2033
Panasonic 2011, 2209, 2214
Pioneer 2212
Samsung 2045, 2113
Sharp 2194, 2220, 2221
Sony 2075
Yamaha 2064, 2474

DVR

Bush 2110
Hitachi 2090
Panasonic 2066, 2067, 2093, 2116,
2117, 2119, 2120, 2122,
2123
Philips 2108, 2111
Pioneer 2016, 2017, 2018, 2019,
2092, 2094, 2095, 2109
2105
RCA 2113, 2219
Samsung 2088, 2091
Sharp 2084, 2085, 2087
Sony 2086, 2218
Toshiba 2475
Victor 2089, 2118
Yamaha

DVD Recorder

Aspire 2222
Astar 2240
Broksonic 2146
Go Video 2213
Hitachi 2062
Insignia 2002
Irradio 2053
JVC 2100, 2101, 2106, 2107
LG 2033, 2057, 2223, 2238
Liteon 2043
Panasonic 2011, 2034, 2058, 2062,
2116, 2117, 2119, 2120,
2121, 2123
Philips 2008, 2044, 2050, 2051,
2147
Pioneer 2017, 2035
Pye 2144
Samsung 2000, 2112, 2216
Sansui 2073
Sanyo 2217
Sony 2004, 2005, 2007, 2052,
2068, 2069, 2074, 2208,
2210, 2211
2239
Sylvania 2032, 2036, 2037, 2039,
2049, 2054, 2055, 2076
Toshiba
Yamaha 2056

Cable

ABC	3002, 3003, 3017, 3066, 3067, 3086, 3093, 3119, 3122
ADB	3020
Adelphia	3081
Alcatel	3016
Americast	3124
Amstrad	3022, 3098
Antronix	3065, 3070
Archer	3070
Arcon	3098
AT&T	3095
Axis	3098
Bell South	3124
Cable Vision	3092
Cabletenna	3065
Cabletime	3104
Cableview	3087
Clearmaster	3127
ClearMax	3127
Clyde Cablevision	3105
Colour Voice	3068
Comcast	3084, 3088, 3117
Comcrypt	3107
Comtronics	3069
Contec	3074
Coolmax	3127
COX	3084
Cryptovision	3110
Director	3084
Eastern	3075
Everquest	3123
Fidelity	3098
Filmnet	3107
Filmnet Cablecrypt	3111
Filmnet Comcrypt	3111
Finlux	3097
Focus	3126
Foxtel	3022
France Telecom	3100, 3101
Freebox	3023
GC Electronics	3070
GE	3066, 3093
GEC	3105
Gemini	3072, 3123

General Instrument

	3017, 3025, 3066, 3084, 3090, 3096, 3117
Goldstar	3120
Gooding	3099
Grundig	3098, 3099
Hamlin	3073, 3078
Hirschmann	3097
Hitachi	3066
HomeChoice	3106
Humax	3021, 3080, 3083
ITT Nokia	3097
Jasco	3123
Jerrold	3017, 3018, 3025, 3066, 3072, 3084, 3090, 3096, 3119, 3123
JVC	3099
Kabel Deutschland	3024, 3027, 3121
Macab	3101
Magnavox	3079
Maspro	3099
Matsui	3099
MegaCable	3117
Memorex	3076, 3122
Minerva	3099
Mnet	3107
Motorola	3025, 3026, 3084, 3088, 3090, 3095, 3117
Movie Time	3077, 3109
Mr Zapp	3101
Multichoice	3107
Multitech	3127
NEC	3064
NET Brazil	3085
Nokia	3097
Noos	3101
NSC	3077
Oak	3074
Pace	3006, 3089, 3121
Palladium	3099
Panasonic	3112, 3118, 3122
Paragon	3122
Philips	3068, 3071, 3079, 3099, 3100, 3101, 3103
Pioneer	3001, 3006, 3094, 3098, 3114, 3116, 3120
Popular Mechanics	3126
Proscan	3066, 3093

Pulsar	3122
PVP Stereo Visual Matrix	3018
Quasar	3122
RadioShack	3123, 3127
RCA	3030, 3031, 3087, 3118
Realistic	3070
Recoton	3126
Regal	3078
Regency	3075
Rembrandt	3066
Runco	3122
Sagem	3101
Samsung	3069, 3089, 3114, 3120
SAT	3098
Scientific Atlanta	3000, 3001, 3002, 3003, 3006, 3028, 3029, 3081, 3086, 3089, 3094, 3095, 3108
Signal	3072, 3123
Signature	3066
Sony	3092, 3125
Sprucer	3118
Standard Component	3115
Starcom	3017, 3072, 3119, 3123
Stargate	3072, 3123
Starquest	3072, 3123
Supercable	3090
Supermax	3127
Tele+1	3107, 3111
Telepiu	3107
Thomson	3082, 3091
TIME WARNER	3084
Tocom	3067
Torx	3017
Toshiba	3122
Tristar	3127
Tudi	3102
Tusa	3072, 3123
TV86	3077
Unika	3065, 3070
United Cable	3018, 3119
Universal	3065, 3070
Universon	3097, 3099
V2	3127
Videoway	3019
View Star	3074, 3077, 3079
Viewmaster	3127
Vision	3127

Visiopass	3097, 3100, 3101
Vortex View	3127
Wittenberg	3098
Zenith	3113, 3122, 3124
Zentek	3126

Satellite

AB Sat	4216, 4217
AccessHD	4104
ADB	4220
AGS	4216
Akai	4053, 4055
Alba	4001, 4004, 4006, 4007, 4062, 4217
Aides	4005, 4007, 4010
Allsat	4048, 4053, 4055
Allsonic	4005, 4008, 4024
Alltech	4217
Alpha	4053
Alpha Digital	4104
Alphastar	4077
Amitronica	4217
Amstrad	4011, 4035, 4217, 4218
Anglo	4217
Ankaro	4005, 4008, 4024, 4217
Anttron	4001, 4004
Apollo	4001
Armstrong	4011, 4053
Artec	4100
Asat	4053, 4055
ASLF	4217
Astacom	4216
Astra	4009, 4011, 4054, 4217, 4219
Astro	4004, 4008, 4010, 4015, 4024, 4213, 4218, 4219
AudioTon	4004, 4048
Aurora	4222
Austar	4222
Axiel	4216
Axis	4008, 4009, 4024, 4050
Best	4008, 4024
Blaupunkt	4015
Blue Sky	4217
Boca	4011, 4054, 4059, 4217
Boston	4216
Brain Wave	4013
Broadcast	4012

Broco	4217	Dishpro	4018, 4117	Goldbox	4213	Kosmos	4049
BSkyB	4035, 4041	Distrisat	4053	GoldStar	4049	KR	4004
BT	4216	Ditristrad	4048	Goodmans	4002, 4006, 4029	Kreiselmeier	4015
Bubu Sat	4217	DNT	4014, 4053, 4055	Goodmind	4111	K-SAT	4217
Bush	4006, 4045	Drake	4072	Grandin	4031	Kyostar	4001
Cambridge	4218	DStv	4222	Grothusen	4001, 4049	L&S Electronic	4024
Canal Satellite	4213	Dune	4024	Grundig	4004, 4006, 4015, 4035, 4211, 4218, 4222	Lasat	4008, 4010, 4024, 4054, 4212, 4215, 4219
Canal+	4213	Echostar	4014, 4018, 4065, 4089, 4117, 4217	Hänsel & Gretel	4219	Lasonic	4108
CaptiveWorks	4099	Einhell	4001, 4005, 4011, 4217, 4218	Hantor	4001, 4013	Lenco	4001, 4024, 4049, 4215, 4217, 4219
Channel Master	4007, 4110	Elap	4216, 4217	Hanuri	4010	Leng	4013
Chaparral	4075	Elekta	4010	Hauppauge	4044	Lennox	4048
CHEROKEE	4216	Elsat	4217	Heliocom	4219	Lenson	4218
Chess	4212, 4217	Elta	4001, 4008, 4024, 4048, 4053, 4055	Helium	4219	Lexus	4053
CityCom	4006, 4215, 4219	Emanon	4001	Hinari	4007	LG	4049, 4103, 4107
Clatronic	4013	Emme Esse	4008, 4024	Hirschmann	4015, 4024, 4210, 4216, 4218, 4219	Lifesat	4008, 4024, 4212, 4217
CNT	4010	Engel	4217	Hisawa	4013	Lifetec	4008
Comag	4080, 4081, 4082, 4083, 4086	Ep Sat	4006	Hisense	4016	Lorenzen	4219
CommLink	4005	EURIEULT	4031	Hitachi	4006, 4114, 4199, 4203	Lorraine	4049
Comtech	4050	Eurodec	4052	Homecast	4084, 4085, 4087	Lupus	4008, 4024
Condor	4008, 4024, 4219	Europa	4053, 4218, 4219	Houston	4048	Luxor	4218
Connexions	4014, 4024	Europhon	4219	HTS	4117	Lyonnaise	4052
Conrad	4024, 4215, 4218, 4219	Eurosats	4011	Hughes	4064, 4068, 4192, 4194, 4196, 4202	Macab	4052
Conrad Electronic	4217, 4219	Eurosky	4008, 4011, 4215, 4218, 4219, 4024	Hughes Network Systems	4071	Magnavox	4127, 4101
Contec	4050	Eurostar	4011, 4215, 4219	Humax	4025, 4030, 4060, 4097	Manata	4031, 4216, 4217
Coolsat	4096	Eutelsat	4217	Huth	4005, 4011, 4012, 4013, 4048, 4050, 4219, 4223	Manhattan	4006, 4010, 4048, 4216
Cosat	4048	Exator	4001, 4004	Hypson	4031	Marantz	4055
Coship	4109	Expressvu	4117	Ilo	4016	Mascom	4010
Crown	4011	Fenner	4024, 4212, 4217	Imex	4031	Maspro	4006, 4217
Daeryung	4014	Ferguson	4006, 4052, 4214	Innovation	4008	Matsui	4216
Daewoo	4057, 4217	Fidelity	4218	Insignia	4107	Max	4219
DDC	4007	Finlandia	4006	Intertronic	4011	Mediabox	4213
Delega	4007	Finlux	4006	Intervision	4048, 4219	Mediamarkt	4011
Dew	4050	FinnSat	4050, 4052	ITT Nokia	4006	Mediasat	4009, 4213, 4218
Diamond	4051	Flair Mate	4217	Jerrold	4019	Medion	4008, 4024, 4217
Digiality	4219	Foxtel	4222	Johansson	4013	Medison	4217
Digital Stream	4105	Freecom	4001, 4049, 4218	JOK	4216	Mega	4053, 4055
DIRECTV	4056, 4064, 4067, 4068, 4070, 4071, 4074, 4107, 4116, 4119, 4121, 4122, 4123, 4127, 4192, 4193, 4194, 4195, 4196, 4197, 4198, 4199, 4200, 4201, 4202, 4203, 4206, 4207, 4221	FTEmaximal	4024, 4217	JSR	4048	Memorex	4127
Discoverer	4212	Fuba	4001, 4008, 4014, 4015, 4024, 4055, 4215	JVC	4029, 4065, 4089, 4117	Metronic	4001, 4004, 4005, 4010, 4028, 4031, 4217
Discovery	4216	Galaxis	4005, 4008, 4009, 4024, 4048, 4050, 4215, 4222	Kamm	4217	Metz	4015
Diseqc	4216	GE	4066, 4093, 4111, 4197	Kathrein	4015, 4034, 4042, 4053, 4055, 4063, 4215, 4216, 4217	Micro electronic	4217, 4218, 4219
Dish Network	4018, 4065, 4089, 4092, 4094, 4095, 4117	General Instrument	4019, 4073	Kathrein Eurostar	4215	Micro Technology	4217
		GMI	4011	Klap	4216	MicroGem	4106
		GOI	4117	Konig	4219	Micromaxx	4008, 4024
						Microstar	4008
						Microtec	4217
						Minerva	4015
						Mitsubishi	4006, 4015, 4202

Mitsumi	4054	Pioneer	4046, 4213	Schwaiger	4051, 4212, 4219	Teleka	4004, 4011, 4014, 4218,
Morgan's	4011, 4053, 4054, 4055,	Polsat	4052	SCS	4215		4219
	4217	Predki	4013	Seemann	4009, 4011, 4014	Telemaster	4010
Motorola	4019, 4088, 4090, 4091	Premiere	4048, 4213	SEG	4001, 4008, 4013, 4024	Telesat	4219
Multichoice	4222	Priesner	4011	Seleco	4048	Telesat	4212, 4213, 4218
Multitec	4212	Primestar	4076	Servi Sat	4031, 4217	Televés	4006, 4218
Muratto	4049	Profile	4216	Siemens	4015	Telewire	4048
Mysat	4217	Promax	4006	Silva	4049	Tempo	4223
Navex	4013	Prosat	4005, 4007	Skantin	4217	Tevion	4008, 4217
Neuhaus	4009, 4048, 4217, 4218,	Proscan	4066, 4093, 4122, 4197	Skardin	4009	Thomson	4006, 4020, 4052, 4058,
	4219	Protek	4051	Skinsat	4218		4208, 4213, 4215, 4216,
Neusat	4217	Proton	4016	SKR	4217		4217, 4219
Next Level	4019	Provision	4010	Skymaster	4005, 4017, 4022, 4212,	Thorens	4051
NextWave	4223	Quadral	4005, 4007, 4008, 4216,		4217	Thorn	4006
Nikko	4011, 4217		4024	Skymax	4053, 4055	Tivax	4104
Nokia	4006, 4040	Quelle	4015, 4215, 4219	SkySat	4212, 4217, 4218, 4219	Tivo	4196
Nordmende	4001, 4006, 4007, 4010,	Quiero	4052	Skyvision	4048	Tokai	4053
	4052	RadioShack	4019	SM Electronic	4212, 4217	Tonna	4006, 4012, 4048, 4217,
Nova	4222	Radiola	4053, 4055	Smart	4215, 4217		4218
Novis	4013	Radix	4014, 4037	Sony	4067, 4070, 4213	Toshiba	4194, 4202, 4203
Oceanic	4051	Rainbow	4004	SR	4011, 4054	Triad	4049
Octagon	4001, 4004, 4050	RCA	4066, 4093, 4112, 4113,	Star Choice	4019	Triasat	4218
Okano	4011		4116, 4118, 4119, 4197,	Starland	4217	Triax	4015, 4215, 4217, 4218
Optex	4048		4122, 4207	Starring	4013	Turnsat	4217
Optus	4213, 4222, 4223	Realistic	4078	Start Trak	4001	Tvionics	4214
Orbitech	4001, 4212, 4213, 4218	Redpoint	4009	Strong	4001, 4004, 4008, 4024,	Twinner	4031, 4217
OSat	4004	Redstar	4008, 4024		4049, 4222	UEC	4222
Otto Versand	4015	RFT	4005, 4053, 4055	STS	4115	Uher	4212
Pace	4006, 4015, 4035, 4043,	Roadstar	4217	STVI	4031	UltimateTV	4070
	4047, 4216	Roch	4031	Sumida	4011	Uniden	4079, 4127
Pacific	4051	Rover	4024, 4217	Sunny Sound	4024	Unisat	4011, 4050, 4053
Packsat	4216	Saba	4010, 4215, 4216, 4219	Sunsat	4217	Unitor	4013
Palcom	4007	Sabre	4006	Sunstar	4011, 4024, 4054	Universum	4015, 4215, 4219
Palladium	4011, 4218	Sagem	4023, 4052	Supermax	4223	US Digital	4016
Palsat	4212, 4218	Sakura	4050	Tandberg	4052	Variosat	4015
Panasat	4222	Samsung	4000, 4001, 4003, 4032,	Tandy	4004	Vega	4024
Panasonic	4006, 4035, 4036, 4121,		4064, 4069, 4071, 4120,	Tantec	4006	Ventana	4053, 4055
	4124, 4126, 4198, 4221		4123, 4196, 4200	TCM	4008	Viewsat	4098
Panda	4006, 4219	SAT	4007, 4218	Techniland	4012	Visiosat	4013, 4048, 4216, 4217
Pansat	4125	Sat Cruiser	4223	TechniSat	4014, 4021, 4026, 4027,	Voom	4019
Patriot	4216	Sat Partner	4001, 4004, 4010, 4013,		4038, 4039, 4053, 4212,	Vortec	4001
Paysat	4127		4049, 4218		4213, 4218	Welltech	4212
PCT	4110	Sat Team	4217	Technology	4222	WeTeKom	4212, 4218
Phileo	4101	Satcom	4012, 4219	Technosat	4223	Wevasat	4006
Philips	4006, 4033, 4053, 4055,	Satec	4217	Technowelt	4219	Wewa	4006
	4061, 4068, 4071, 4127,	Sateleco	4024	Teco	4011, 4054	Winersat	4013
	4196, 4201, 4202, 4203,	Satford	4012	Telanor	4007	Wisi	4006, 4014, 4015, 4218,
	4206, 4213, 4216	Satmaster	4012	Telasat	4215, 4219		4219
Phoenix	4050	Satplus	4212	Telecom	4217	Woorisat	4010
Phonotrend	4006, 4005, 4048	Schneider	4008, 4212, 4216	Telefunken	4001, 4017, 4216	Worldsat	4216

Xrypton	4024
XSat	4217
Zehnder	4008, 4209, 4010, 4215, 4024
Zenith	4102, 4107, 4195
Zodiac	4004

CD

Yamaha	5082, 5095
--------	------------

CD Recorder

Yamaha	5083
--------	------

MD

Yamaha	5080, 5081, 5086
--------	------------------

Tape

Yamaha	5084, 5087
--------	------------

Tuner

Yamaha	5066, 5085, 5088, 5090, 5092
--------	------------------------------

XM

Yamaha	5091, 5093
--------	------------

SIRIUS

Yamaha	5064, 5067
--------	------------

DOCK

Yamaha	5068, 5089
--------	------------

NET

Yamaha	5071, 5076, 5079, 5094
--------	------------------------

LD

Yamaha	2080
--------	------

Amplifier

Yamaha	5019, 5020, 5098
--------	------------------

Apple TV

Apple	2241
-------	------

“Apple TV” is a trademark or registered mark of Apple Inc.